products finishing

AUGUST
1960

IN THIS ISSUE:

Special Machine Plates Oneida Silverware . . . Page 44

Electrostatic Painting for the Vacuum Metallizer . . . Page 58

Table of Contents . . . . Page 5

finishes on metal products

34¢ per part may be economical!

1²/₃¢ per part may be too much!

You may be looking at cleaning department costs and saying: "that looks about right . . . it used to cost us a lot more!" Would you like to know, for sure, that your cleaning costs are just as low as they can be . . . with excellent results?

Many present day users of Cincinnati Cleaning machinery thought their former methods were modern . . . their costs low . . . their production high – until a Cincinnati cleaning unit proved saving of 60, 66, 75 and 81 percent in time and labor . . . along with production increases up to 200 percent!

The Cincinnati Cleaning service that led to these savings is available to you . . . without cost or obligation! Use the handy coupon for complete details.

Cincinnati CLEANING & FINISHING MACHINERY
2008 Hageman Street, Cincinnati 41, Ohio

☐ Have a Cincinnati engineer point out time and labor savings and production increases in our cleaning.

☐ Send literature on Cincinnati cleaning equipment.

company .....

address .....

city ..... state .....

name .....

For more data circle 301 on Postpaid Card

For a single tank cleaner to do many jobs

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS

"RUSTRIPPER" gives you the "universal" tank cleaner... removes rust, scale, paint, soils

Here is a remarkable alkaline material with powerful cleaning and chelating action. It conquers a wide variety of soils. In a tank of Oakite RUSTRIPPER, you can remove scale and rust with complete safety. It strips tough paints and phosphate undercoatings with ease. It cleans off metallic smuts, light shop soils, discolorations.

Look at its performance in shop service: "Aircraft parts freed of scale with boiling soak, instead of sand blasting"..."oil, welding flux, rust removed in job plating"..."soaked steel wrenches give brighter plate"..."removes all rust, scale, carbonized oil from diesel liners prior to plating"..."displays amazing solution life even though worked very hard"..."eliminates pickling and precleaning for barrel-plated screws"..."does to bolts in 3 minutes what took pickling 40 minutes". *And that's just a sample.*

Write for Bulletin 9651. Better yet, ask the Oakite man. Oakite Products, Inc., 20 Rector Street, New York 6, N. Y.

it PAYS to ask Oakite

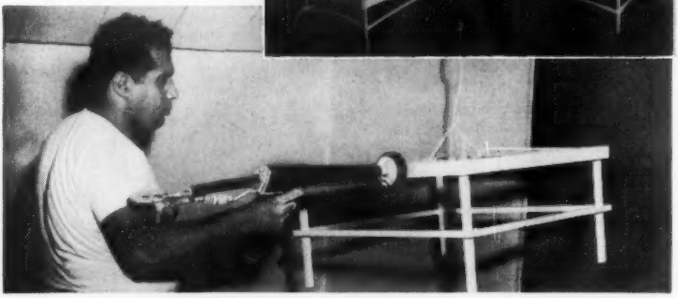
OAKITE

over 50 Est. 1909 SCIENCE years' leadership in industrial cleaning

For more data circle 304 on Postpaid Card

What Would
75% PAINT SAVINGS
Mean in YOUR Finishing Department?

Designed for the New Decade—Beautifully styled BAL HARBOUR line of aluminum furniture by AFCO was winner of the 1960 Apollo Award for pre-eminence in design. The uniform, high quality finish is applied electrostatically with the Ransburg No. 2 Process Hand Gun.



Faster . . . Cleaner . . . Cheaper—The "wrap-around" feature of the No. 2 Process Electrostatic Hand Gun paints all areas of this type of work from one side only, providing a 75% paint savings and a 700% increase in production volume over former air hand spray.

RANSBURG

Ransburg No. 2 Process Electrostatic Hand Guns are providing a 75% painting savings in the painting of beautiful AFCO aluminum furniture.

AFCO Aluminum Furniture Co., Inc., Miami, Fla., replaced hand spray with two Ransburg Electrostatic Hand Guns. Along with paint and labor savings, quality of the work was improved with greater uniformity. And, production volume was increased a healthy 700%! Formerly, they were painting approximately 100 items a day. NOW, with the faster, cleaner Electrostatic Hand Guns, they paint from 700 to 800 pieces per day. Electrostatic is faster because the "wrap-around" characteristic of Electro-Spray paints all areas of this type of work with a pass from one side only.

NO REASON WHY YOU CAN'T DO IT TOO

Write for information and literature about this revolutionary, new painting tool. See how the Ransburg Electrostatic Hand Gun can save time . . . paint . . . and cut costs in YOUR finishing department. If your production justifies, it'll pay you to investigate Ransburg's *automatic* electrostatic spray painting equipment. Write for our No. 2 Process brochures which show numerous examples of modern production painting in both large and small plants.

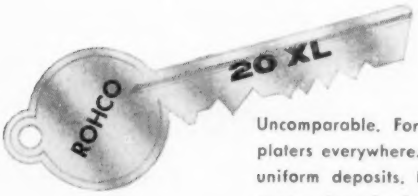
RANSBURG Electro-Coating Corp.

Box 23122, Indianapolis 23, Indiana

For more data circle 305 on Postpaid Card

ROHCO® ....YOUR KEY TO BETTER, BRIGHTER CADMIUM PLATING

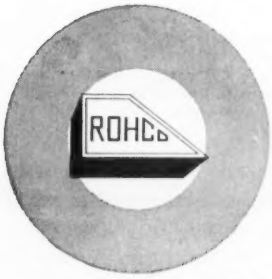
Is the need for a better cadmium plated finish a problem at your plant? Here are the two logical courses of action. Either will deliver "showcase" brilliance and beauty. Both ROHCO CADMIUM BRIGHTENERS give unequaled plating performance. Jobs will go smoother—be more profitable—customers more satisfied!



Uncomparable. For a decade 20XL has been the preference of platers everywhere. Reaches the ultimate in bright clear and most uniform deposits. Has amazingly wide latitude of concentration range—for simplest control. One product—for barrel or still plating supplied as either liquid or powder for greatest convenience to user.

For added economy. Super XL offers the same outstanding quality as 20XL. Is more economical to use because it is 50% more concentrated—you benefit from reduced freight and container costs.

Add ROHCO XL "showcase" brilliance to your cadmium plating. Write for details, today!



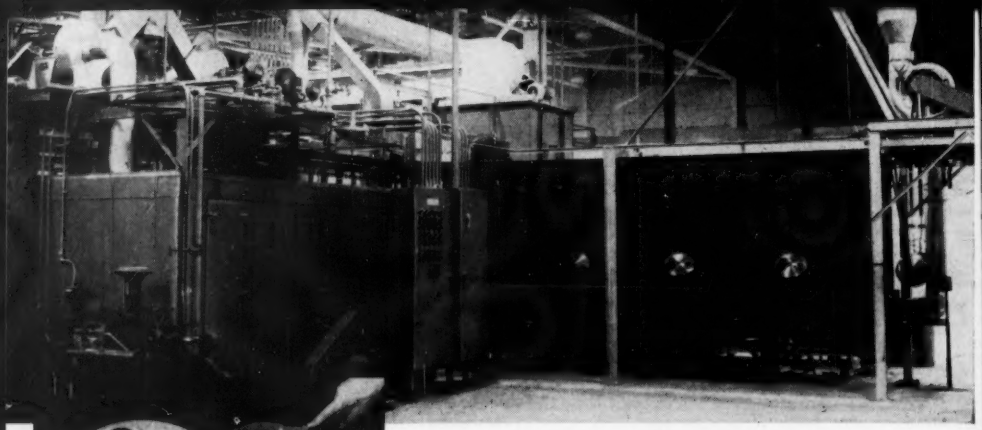
—Nationwide Stockpoints—

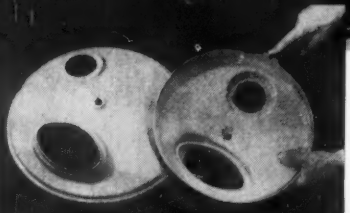
R. O. HULL & COMPANY, INC.

1304 Parsons Court • Rocky River 16, Ohio

The RIGHT START . . . a BETTER FINISH.

For more data circle 306 on Postpaid Card





JOB REPORT

PRODUCT:

Stamped steel covers and structural components for high-voltage Westinghouse transformers. Coated with CORVEL cellulosic to provide 12000 volts insulation, a gasketless seal, and a durable, decorative weather proof surface.

PROCESS:

Preheat parts, dip in "fluidized" bed of fine, dry plastic powder, and postheat. Oven temperatures held to plus or minus 5° F. Licensed fluidized bed process deposits tough, corrosion-resistant coating of uniform thickness on all surfaces, regardless of part configuration.

PRODUCTION:

Uninterrupted production of finish-coated parts from conveyorized installation of preheating ovens, dipping tanks, excess powder blow-off and collection units, and postheating ovens—custom engineered, fabricated and erected by MOCO for economical operation by Westinghouse Electric Corporation.

Trademark of The Polymer Corporation for finishing materials.

MOCO, the Polymer Corporation and Westinghouse Team-up to Beat the Elements!

Teaming up to take advantage of the unique new fluidized bed coating process, Michigan Oven Company, The Polymer Corporation and Westinghouse Electric Corporation engineers recently completed target-date installation of a system for applying CORVEL* fusion bond coatings at a modern new Westinghouse manufacturing center.

Designed to apply a protective coating on transformer covers, the new system demanded accurate timing and temperature control of parts during pre-heating and post-heating, complete scavenging of excess powder (for general safety reasons as well as economic ones), and continuous movement of parts in a specified path for uniform dip-coating.

Experienced MOCO design and process engineers provided an integrated system of ducts, blowers, conveyors, and heating and control equipment completely meeting Westinghouse specifications for quantity, quality and cost.

MOCO problem-solvers will welcome the opportunity to team their talents with yours. Write for the name of our representative nearest you.

FREE—Send for your MOCO bulletin showing typical finishing system applications and specifications; no cost or obligation, of course.

MICHIGAN OVEN COMPANY

MOCO

FINISHING EQUIPMENT DEPT.
423 BRAINARD
DETROIT 1, MICHIGAN

Washing Machines • Bonderizing Units • Dry-off Ovens
Dip Tanks • Spray Booths • Flo-coaters • Finishing Ovens • Conveyors

For more data circle 307 on Postpaid Card

M. L. FORNEY, *Publisher*
RICHARD S. KLINE, *General Manager*
EZRA A. BLOUNT, *Editor*
GERARD H. POLL, JR., *Associate Editor*
H. LEROY BEAVER, DR. NELSON F. MURPHY } *Consulting and Contributing Editors*
NORMAN S. ROGERS, *Art Editor*
K. M. GETTELMAN, *Circulation Manager*

products finishing

Vol. 24 No. 11 August, 1960

FEATURES IN THIS ISSUE:

43 *Editor Visits Japan* • Editorial

44 *Finishing Flatware* • By Daniel Gray

58 *What Vacuum Metallizers Should Know About Electrostatic Spraying* • By John Scharnberg and T. E. Hayden

68 *How C. M. W. Electroplaters Reduced Manual Handling* • By Francis Magnusson and Marty LeClair

74 *How to Finish Magnesium* • By Dr. John A. Stevens

6 *Advertising Representatives*

DEPARTMENTS:

90 *Spotlighting Finishing Progress* • By Dr. Nelson F. Murphy

90 *—Porcelain Enamel Adherence Studies*

98 *New Equipment, Materials, Processes*

137 *Finishing Clinic*

139 *Metals Memos*

142 *Free Literature*

152 *Classified Advertising: Positions Available; Used Machinery; Professional Cards; Services*

153 *News of the Finishing Industry*

165 *Meetings of Interest to Finishers*

166 *The Finishing Touch*

168 *August Advertisers' Index*

Member
BPA
Metal Finishing Suppliers Association, Inc.

contents

Published monthly with two issues in March and copyrighted 1960 by Gardner Publications, Inc., 431 Main St., Cincinnati, Ohio. Printed in U.S.A.

for Pre-Planned

HIGH PRODUCTION PRODUCT FINISHING

Consult CM

★ Electro-formed nickel or copper MASKS for spray decorating of intricate areas in multiple colors, one wet coat after another.
★ A complete line of AUTOMATIC PAINTING MACHINES for every finishing requirement.
★ Mechanical and air operated clamps and pressure FIXTURES for holding parts and masks.
★ Automatic high pressure MASK WASHERS for doubling production.

"CM Quality Tools Produce Quality Products"

20 years of "know-how" are at your disposal. Write for brochure or send prints or sample parts, giving production requirements and results desired.

Conforming Matrix CORPORATION
358 TOLEDO FACTORIES BLDG. • TOLEDO 2, OHIO
Call CHerry 8-3518
For more data circle 308 on Postpaid Card

products finishing

advertising representatives

Duncan W. Barton, 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern Pennsylvania, central New York State, New Jersey, Maryland, Delaware, Washington, D. C., Long Island, Brooklyn, New York City, Staten Island.

Granville M. Fillmore, *Vice President,* 60 East 42nd St., New York 17, N. Y., Murray Hill 7-7390. Eastern New York State, Connecticut, Massachusetts, Rhode Island, Vermont, New Hampshire, Maine.

George E. Hay, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Western Pennsylvania, western New York, Ohio, Kentucky, southern Indiana.

John M. Krings, *Vice President,* Room 211-A, 540 N. Michigan Ave., Chicago 11, Ill., DElaware 7-5441. Western Michigan, Illinois, Wisconsin, Iowa, Minnesota, the Dakotas, northern Indiana.

Jeryl L. Marlatt, 1051 Brooklawn Rd., Birmingham, Michigan, MIdwest 6-5935. Eastern Michigan, northwestern Ohio.

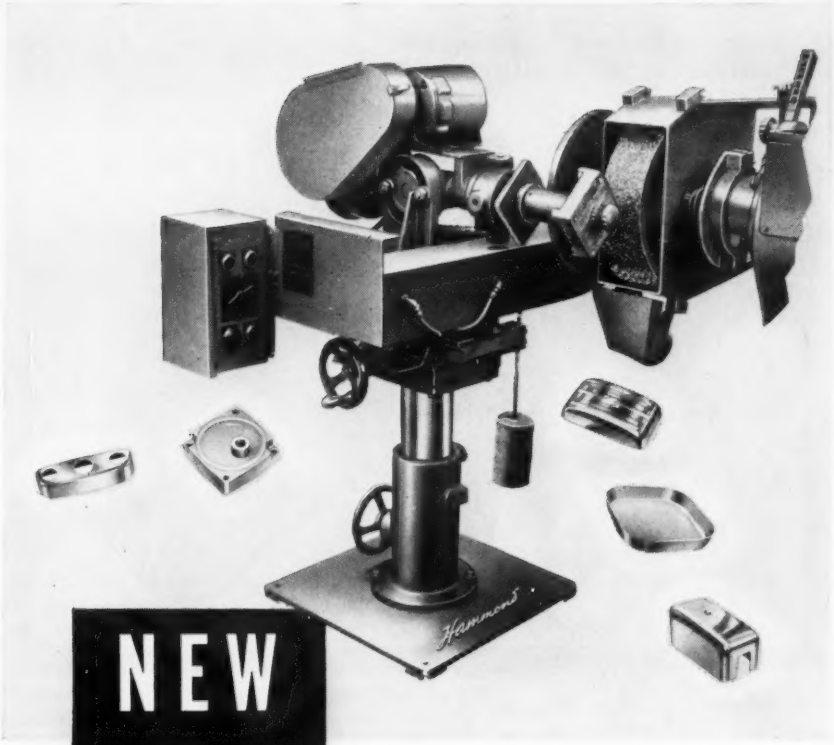
Norman S. Rogers, 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Central Indiana.

Gene J. Schwarber, *Advertising Manager,* 431 Main Street, Cincinnati 2, Ohio, CHerry 1-5924. Missouri, Kansas.

The Robert W. Walker Company, 730 S. Western Ave., Los Angeles 5, Calif., DUnkirk 7-4388; 57 Post St., San Francisco 4, Calif., SUtter 1-5568. California, Oregon, Washington.

★ ★ ★

Circulation over 23,000— largest in the finishing field



NEW

Hammond CAMMED JUNIOR AUTOMATIC

Work Holding Machine

The new Hammond Cammed Junior Automatic (Model EPC) is especially designed to hold other than round work pieces while being polished or buffed by a regular polishing and buffing lathe or abrasive belt machine. In addition, it will hold round parts as large as 14" in diameter.

Hammond OF KALAMAZOO "Good Machinery Since '83"

The Hammond Junior Model EPC is automatically cycled. When variable work dwell timer is started by pushbutton, the work spindle starts and the cam and work are moved into contact with the cam follower and wheel through the pressure weights with speed of movement being controlled by an air cylinder.

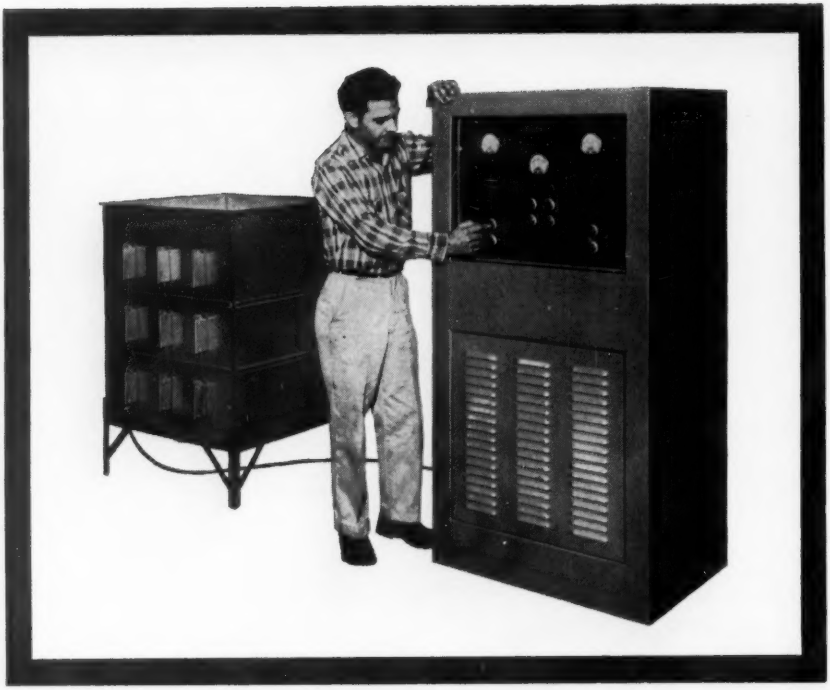
The pre-set timer permits work to dwell at finishing wheel for required periods up to one minute, when work is automatically air retracted to load-unload position and work spindle stopped. Weight can be varied to suit correct finishing pressure.

Cams are designed to suit each work piece and finish requirement. The standard adjustable 14" dia. cam follower disc is bracket mounted on the machine and is set on center with the wheel spindle.

Hammond Machinery Builders Inc.

1622 Douglas Ave. Kalamazoo, Michigan

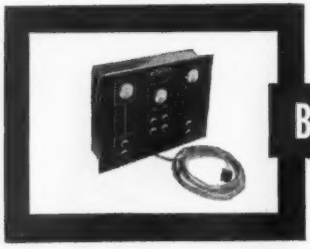
For more data circle 309 on Postpaid Card



for **effective, economical cleaning** with **simple, dependable equipment . . .** and **assured factory-trained maintenance . . .**

BRANSON SONOGEN® Ultrasonic Cleaning Systems

Typical of Branson's advanced equipment is the new remote-controlled APT-500. Its 3 KW (average) of concentrated cleaning power activates up to 300 gallons of solvent. It can be operated completely from a central control station at a distance from the tank—ideal for conveyorized production installations.



For information on all Branson SONOGEN® ultrasonic cleaning equipment, write

BRANSON ULTRASONIC CORPORATION

5 BROWN HOUSE RD., STAMFORD, CONN.

For more data circle 310 on Postpaid Card

Smooth even plating
with greater economy:

ASARCO-MAX COPPER ANODES

Asarco-Max anodes, produced by a patented process and made of high grade Asarco copper, are unusually dense and free of voids—completely non-porous and free from impurities. Successfully proven in both acid and cyanide baths, they can be used with or without bags or diaphragms. Sludging is minimal, corrosion uniquely uniform. Order Asarco-Max anodes in lengths up to 36", in square or rectangular shapes up to 5 inches wide, in any desired thickness of one inch or more. For complete data, write or call Federated Metals Division, American Smelting and Refining Company, 120 Broadway, New York 5, N. Y., or your nearest Federated Sales office.

ASARCO

AMERICAN SMELTING AND REFINING COMPANY

FEDERATED METALS DIVISION

Where to call for information:

ALTON, ILLINOIS
Alton: Howard 5-2511
St. Louis: Jackson 4-4040

BALTIMORE, MARYLAND
Orleans 5-2400

BIRMINGHAM, ALA.
Fairfax 2-1802

BOSTON 16, MASS.
Liberty 2-0797

CHICAGO, ILL. (WHITING)
Chicago: Essex 5-5000
Whiting: Whiting 826

CINCINNATI, OHIO
Cherry 1-1678

CLEVELAND, OHIO
Prospect 1-2175

DALLAS, TEXAS
Adams 5-5034

DETROIT 2, MICHIGAN
Trinity 1-5040

EL PASO, TEXAS
(Asarco Mercantile Co.)
3-1852

HOUSTON 29, TEXAS
Orchard 4-7611

LOS ANGELES 23, CALIF.
Angelus 8-4291

MILWAUKEE 10, WIS.
Hilltop 5-7430

MINNEAPOLIS, MINN.
Tuxedo 1-4109

NEWARK, NEW JERSEY
Newark: Mitchell 3-0500
New York: Digby 4-9460

PHILADELPHIA 3, PENNA.
Locust 7-5129

PITTSBURGH 24, PENNA.
Museum 2-2410

PORTLAND 9, OREGON
Capitol 7-1404

ROCHESTER 4, NEW YORK
Locust 5250

ST. LOUIS, MISSOURI
Jackson 4-4040

SALT LAKE CITY 1, UTAH
Empire 4-3601

SAN FRANCISCO 24, CALIF.
Atwater 2-3340

SEATTLE 4, WASHINGTON
Main 3-7160

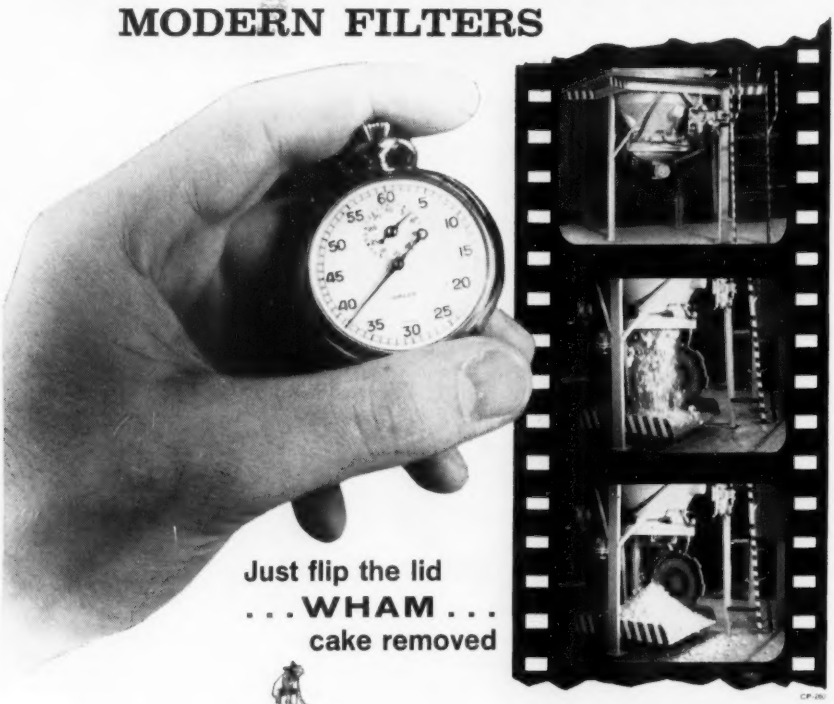
WHITING, IND. (CHICAGO)
Whiting: Whiting 826
Chicago: Essex 5-5000

IN CANADA: Federated Metals Canada, Ltd.
Toronto, Ont., 1110 Birchmount Rd., Scarborough, Phone: Plymouth 73246

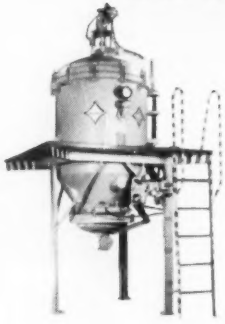
Montreal, P.Q., 1400 Norman St., Lachine, Phone: Melrose 7-3591

For more data circle 311 on Postpaid Card

SAVE TIME and EFFORT WITH MODERN FILTERS



For additional information write for Bulletin EP-100.



With VIBRA-SHOC or RECIPRO-SHOC, cleaning of your INDUSTRIAL filter is completed in minutes. The above mentioned trade named devices are obtainable on INDUSTRIAL'S TYPE 152 filters, as are such optional equipment as QUICK OPENING COVERS, LIQUID SHOC and AIR WASH, all designed with the efficiency you require for your particular operation. All these mechanical aids work for you to realize a definite cost savings based on reduced downtime, for either continuous or batch type operation. These self-cleaning devices also eliminate the manual dirty work in handling any dry, wet or semi-solid material.

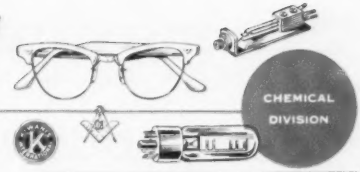
INDUSTRIAL

INDUSTRIAL FILTER & PUMP MFG. CO.
5904 West Ogden Avenue, Chicago 50, Illinois

PRESSURE FILTERS ♦ ION EXCHANGERS ♦ CORROSION TEST CABINETS ♦ PUMPS ♦ WATER & WASTE-TREATING EQUIPMENT

For more data circle 312 on Postpaid Card

corrosion-resistant rhodium plating for electrical and decorative applications



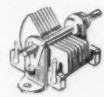
CHEMICAL DIVISION

Rhodium is ideal for plating a decorative finish on many types of jewelry, optical goods, instruments, reflectors and equipment. It provides a hard, brilliant-white, non-tarnishable, highly reflective surface that is extremely resistant to corrosion. It adds to the product sales appeal.

The properties of Rhodium are also very well-suited to many electrical and electronic applications. In general, Rhodium improves efficiency whenever a low-resistance, long-wearing, oxide-free contact is required. Rhodium plate assures low noise level for moving contacts, no oxide rectification, low and stable contact resistance. Rhodium plated slip rings and commutators show negligible wear. The positive action of plated contacts subjected to long periods of inactivity emphasizes the efficiency of Rhodium for safety alarm contacts. Excellent protection against atmospheric corrosion is obtained for printed circuits by plating Rhodium over nickel to assure long wear and low noise, or Rhodium over Silver to protect against tarnish and corrosion.

CHEMICAL DIVISION • 113 ASTOR STREET
NEWARK, N. J.

CRYSTAL STRUCTURE	FACE CENTERED CUBIC A° 3.7954
ATOMIC WEIGHT	102.91
DENSITY	12.44
MELTING POINT	1966°C
COEF. OF LIN. EXPANSION	8.19 X 10 ⁻⁶ 0°C, PER °C
THERMAL CONDUCTIVITY	(0°C) 213 C.G.S. UNITS
REFLECTIVITY ELECTROPLATE	78% AT—620 MU
HARDNESS ELECTROPLATE	540-640 V.H.N. 20 GRAM LOAD



Send for literature.

ENGELHARD
INDUSTRIES, INC.
EXECUTIVE OFFICES:
113 ASTOR STREET • NEWARK 2, NEW JERSEY

AMERICAN PLATINUM & SILVER DIVISION

a simplified mirror-bright silver plating process

Here is the most efficient, simple procedure to produce mirror-bright silver plate, finished directly—through a complete range from flash to heavy deposit. It is being used with outstanding success for all types of jewelry and hollow ware. The procedure is easy, economical and non-critical—with little or no polishing required. Silva-Bright is a clear, water-white solution, enabling the operator to observe work as it is being plated. Uniformly good results are attained with current densities ranging from 10 to 40 amperes per square foot. Normal room temperature operation minimizes fumes and tendency toward bath decomposition. Send for descriptive data together with detailed plating procedures.

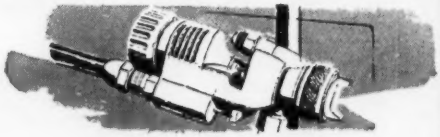
AMERICAN PLATINUM & SILVER DIVISION
231 N. J. RAILROAD AVENUE, NEWARK, N. J.

DOMESTIC DIVISIONS: AMERICAN PLATINUM & SILVER DIVISION • AMERSIL QUARTZ DIVISION • BAKER CONTACT DIVISION • BAKER DENTAL DIVISION • BAKER PLATINUM DIVISION • BAKER SETTING DIVISION • CHEMICAL DIVISION • HANOVIA LIQUID GOLD DIVISION • INSTRUMENTS & SYSTEMS DIVISION • IRVINGTON-BAKER REFINING DIVISION • D. E. MAKEPEACE DIVISION • RESEARCH & DEVELOPMENT DIVISION • H. A. WILSON DIVISION. COMPANIES ABROAD: ENGELHARD INDUSTRIES OF CANADA, LTD., TORONTO • ENGELHARD INDUSTRIES LTD., BAKER PLATINUM DIVISION, HANOVIA PRODUCTS DIVISION, LONDON • SOCIEDAD SURAMERICANA DE METALES PRECIOSOS S.A., BOGOTA • ENGELHARD INDUSTRIES S.A.R.L., PARIS • ENGELHARD INDUSTRIES A/S, COPENHAGEN • GLOVER & GOODE PTY., LTD., MELBOURNE • ENGELHARD INDUSTRIES, K.K., TOKYO • ENGELHARD INDUSTRIES, PTY., LTD., MELBOURNE • ENGELHARD INDUSTRIES, LTD., ZURICH • INDUSTRIE ENGELHARD S.P.A., ROME • GUILIANO STACCIOLI-METALLI PREZIOSI S.P.A., ROME • INVERSIONES EN INDUSTRIES NACIONALES, S.A., BOGOTA. ASSOCIATED COMPANIES: KALIE-CHEMIE-ENGELHARD KATALYSATOREN G.M.B.H., HANOVER

PROMPT PRECIOUS METAL SCRAP RECOVERY SERVICE • ENGELHARD PROCEDURES RECOVER 100% OF ASSAYED PRECIOUS METAL CONTENT • IRVINGTON-BAKER REFINING DIVISION

For more data circle 313 on Postpaid Card

The one sure way of getting the

your products 

that offers the entire package:

for equipment (2) an unbiased

the method best suited to your

research, engineering,

Three words say it:

DeVilbiss total

Spray guns Automatic spray coaters Dip & flow coaters Hot-spray systems Airless spray equipment Portable spray outfits Air compressors Hose & connections Paint tanks & pumps Circulating systems Spray booths Paint baking ovens Make-up air systems Power spray washers Rustproofing

most satisfactory finishes for

is to consult the only company

(1) one-source responsibility

recommendation on

requirements (3) all services--

training--to insure job success.

service *Put it to work for you now!*

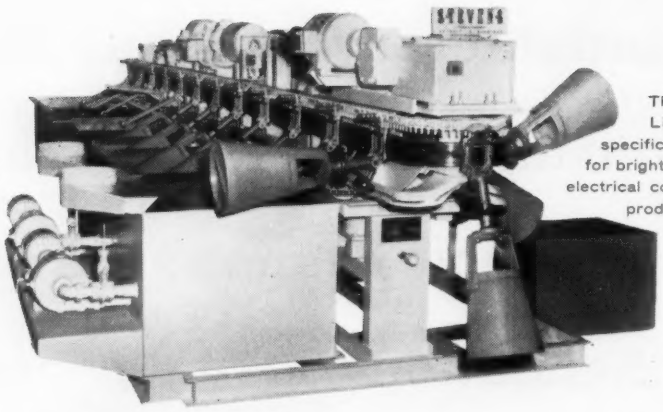
machines Pickling equipment Dust collectors Oven heaters Engineered finishing systems Customer research laboratories World-wide parts & repair service Complete operator training *THE DeVILBISS COMPANY, TOLEDO 1, OHIO. ALSO BARRIE, ONTARIO; LONDON, ENGLAND; SÃO PAULO, BRAZIL. OFFICES IN PRINCIPAL CITIES.

FOR TOTAL SERVICE, CALL

DEVILBISS

DV

For more data circle 314 on Postpaid Card



This particular Little Steve is specifically designed for bright dipping tiny electrical components at production speed.

NEW LITTLE STEVE BARREL MACHINE REVOLUTIONIZES PRECISION PLATING AND PROCESSING OF SMALL PARTS

Completely automatic, extremely compact, mechanically flexible, inexpensive to buy, install, maintain.

Meet the newest member of the famous Little Steve family of automatic plating and processing machines. It is small . . . only 4 feet high by 6 feet wide . . . not much higher or wider than your desk. Designed for use in your integrated operations, it incorporates features that meet today's rigid manufacturers' specifications. For example, this new Little Steve provides: • **precision plating on an automatic basis** • **low ceiling height and light floor load** • **designed for integrated process manufacturing** • **oblique barrels that require no lids** • **automatic loading and unloading** • **minimum solution and anode requirements.**

PLUS many more of the exclusive features that are part of every dependable, long-lasting, efficient Stevens plating and processing machine.

This exclusive selective "skip track" feature permits elimination or addition of any processing step. Note "no lid" barrels, easy accessibility of mechanism to operator standing on the floor.

Write today for complete information on this processing profit-builder.

frederic b. **STEVENS,** inc.

DETROIT 16, MICH.

BUFFALO CHICAGO DETROIT CLEVELAND
DAYTON NEW HAVEN INDIANAPOLIS SPRINGFIELD (OHIO)

For more data circle 315 on Postpaid Card

DETREX 910

CLEANS AND PHOSPHATE COATS

ELIMINATES HARDWATER PROBLEMS—CONTROLLED PH

DOES IT WITH BOTH BARRELS

NOT THIS...

BUT THIS...

Here's a new approach to iron phosphate coating.

Detrex 910 chemically cleans and phosphate coats in one operation. It is designed for use in continuous mechanical spray washing equipment ranging from a 2 to a 6 stage operation.

ARE YOU IN A HARD WATER AREA? This field tested and fully guaranteed product is so compounded that it will accept at least fifteen times more alkali than other products and still remain in the PH coating range to produce superior iron phosphate coating. This unique alkali tolerance permits Detrex paint-bond 910 to be used in practically all areas of the United States without special PH control.

It's a "double-barreled" advancement that can mean important savings to you. Our field engineers will be glad to furnish the details.

DETREX CHEMICAL INDUSTRIES, INC.

P.O. Box 501, Dept. PF-860, Detroit 32, Mich.

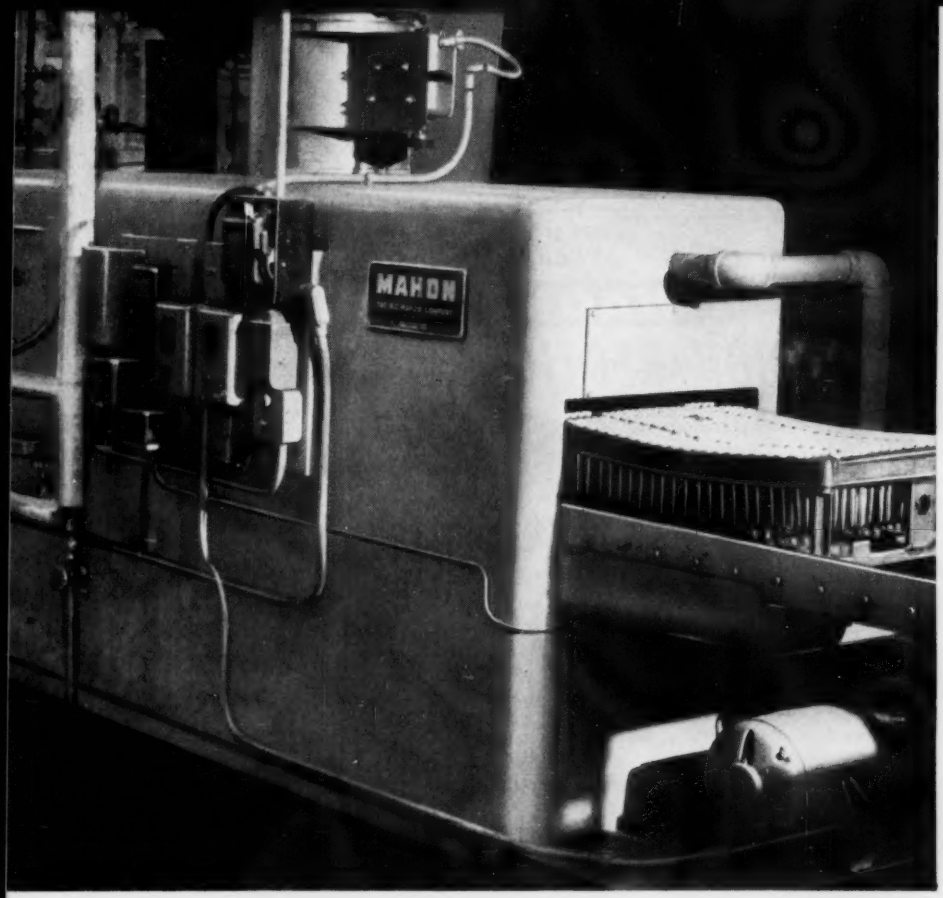
For more data circle 316 on Postpaid Card

for quality-controlled processing... industrial equipment by MAHON

'cotton-picking' spindles thoroughly cleaned 500 at a time for International Harvester

In cleaning a 500-piece-load of cotton-picking spindles, the two-stage Mahon machine washes the parts with detergent in hot water (at 180°F); then hot-air dries the load at (250°F). Automatic cycle time is about 15 minutes per load.

MAHON



ed, chromium-plated, barbed spindles (shown in inset) are key parts of cotton- machines made by International Harvester Company. These spindles are the metal s' that actually field-pick the cotton—several million are produced each year at IH's his, Tenn., Works. A critical step in processing these parts is thorough cleaning before eating and plating. Removal of oil, grease, and foreign matter from the spindle sur- s essential to insure uniform hardness . . . and long product life.

'quality-controlled processing" the spindles are washed and dried in Mahon equip- This special machine, developed for International Harvester from Mahon Industrial nent Division 'almost-standard' designs, means production efficiency . . . product . . . faster delivery and reasonable cost. Over the years Mahon equipment is your vestment. Call in a Mahon industrial engineer; let him prove why.

R. C. MAHON COMPANY
DIT 34, MICHIGAN
CTURING PLANTS—Detroit, Michigan and Torrance, California
GINEERING OFFICES—Detroit, New York, Chicago, San Francisco and Torrance.

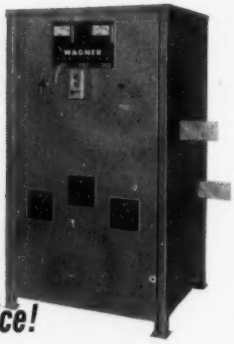
YOUR BIGGEST VALUE
IS IN MAHON'S PLANNING
AND ENGINEERING EXPERIENCE

For more data circle 317 on Postpaid Card

LOOK FOR THE DIAMONDS—SIGN OF FINISHING QUALITY

Process Engineered

WAGNER SILICON RECTIFIERS



Designed to match a process—not to meet a price!

Wagner Rectifiers are *process engineered* to give uninterrupted power that matches your process, assuring highest efficiency from both equipment and process.

In addition, their important engineering features make them far superior to anything on the market . . . yet they are priced competitive to comparable quality.

Insist on These 5 Wagner Features in Your Next Rectifier:

1. **CUSTOM-BUILT**—to do more than just meet your routine power needs . . . they're built to take the unexpected that occurs in every shop. Momentary extra heavy loads and short circuits are completely and harmlessly absorbed—without cell failure and without shortening rectifier life.
2. **MORE RECTIFICATION AREA**—twice the cells found in ordinary rectifiers, with each cell having over 2½ times the usual rectification area. This gives a uniform power supply, fewer operating troubles, maximum efficiency!
3. **UNIQUE COOLING SYSTEM**—a special-type blower and strategically located baffles force pressurized air directly across the cells, assuring longer cell life and highest possible cell efficiency.
4. **OVERLOAD PROTECTION**—protective devices shut down rectifier before highly unusual overload or other dangerous situation causes damage.
5. **RUGGED COMPONENTS**—Wagner-built transformers have Class B insulation (inorganic materials) . . . bus bars are silver plated . . . housings are ruggedly built . . . meters are sealed to protect their precision accuracy.

Wagner Silicon Rectifiers are available in capacities from 500 to 50,000 amperes with full selection of controls for manual or automatic regulation. Wagner Selenium Rectifiers also available in same capacity range.

Ask your Allied Field Engineer about the many advanced features of Wagner Rectifiers and how they can benefit you in your operations. You'll find his name listed under "Plating Supplies" in the yellow pages. Or, write for FREE TECHNICAL DATA FILES.

Allied Research Products, Inc.

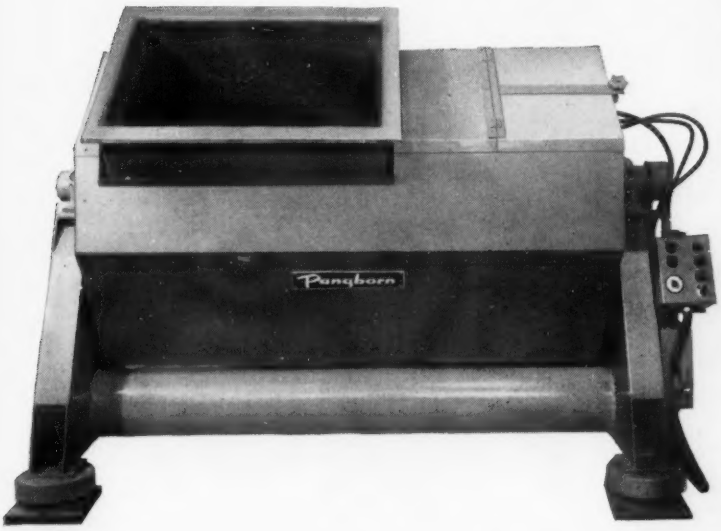
4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Butcher Co.
European Agent: Sture Granberger, Storgatan 10, Stockholm, Sweden
Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | IRILAC® Coatings | ISOBRITE® Brighteners | ARP® Supplies | WAGNER Equipment

For more data circle 318 on Postpaid Card

AIR-CUSHIONED

vibration



Finishes parts up to 100 times faster!

New Pangborn Air-Cushioned Vibratory Finishing Machine—culmination of Pangborn's years of experimentation and refinements*—gives tremendous savings in finishing costs!

This is the 6 cu. ft. capacity Pangborn Air-Cushioned Vibratory Finishing Machine . . . perfect solution for cleaning, descaling, deburring, grinding, radiusing, fine-finishing, coloring or burnishing all metal and metal alloy parts, many suitable plastic and ceramic items.

- Works up to 100 times faster than conventional methods at lower cost.
- Most compact vibratory machine on the market.
- Air cushion suspension gives automatic leveling and amplitude control, supplants spring suspension systems subject to fatigue.
- Does work impossible to do by barrel finishing or other means.
- Standard basic machines are equipped with mechanically variable speeds.
- Floor vibration entirely eliminated, making possible (for the first time) second floor mounting.

Available in a wide range of sizes. Also auxiliary equipment, media and compounds for every need. Send parts with exact finish specifications, or finished specimen, for sample processing in our laboratory, to: Mr. William E. Brandt, PANGBORN CORPORATION, 5000 Pangborn Blvd., Hagerstown, Md.

*Pat. No. 2,422,786; June 24, 1947

Pangborn
OF HAGERSTOWN

For more data circle 319 on Postpaid Card

the ZAHN OSCICATOR

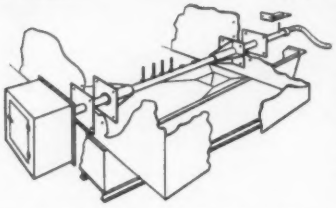
TRADEMARK PAT. PENDING

introduces a new concept of flow coating

70% to 90% fewer nozzles.
Less solvent loss.
Smaller pumps.
Reduces paint inventory.
Smaller tanks.

A time-controlled and stroke-controlled movement combines oscillation with reciprocation . . . uses only a few standard low-pressure nozzles. This combination of motions flows the paint over all surfaces as the ware moves through the tunnel.

The U. S. Bedding Company of St. Paul, Minnesota, recently installed a Zahn Oscicator for coating a variety of bed springs and frames. This view looking into the flow chamber shows three of the many types of ware being coated successfully with 8 nozzles.



The heart of the Zahn Oscicator system is contained in the small control cabinet at the left. Paint manifold is drilled and tapped on 2" centers so that an exact nozzle pattern may be selected and the balance of the holes plugged.

Improved organic finishing is obtained by the modern features of this new revolutionary flow coating system which uses fewer nozzles, shorter tunnels, smaller pumps and smaller reservoir tanks. The Zahn Oscicator combines an oscillating motion with a reciprocal motion to give a complete flow pattern from 6 to 8 nozzles. This distributes a full flow of paint effectively over the same area that would be supplied by as many as 40 or 50 nozzles in conventional flow coating machines. The amount of paint continuously in circulation is only about 15% to 20% formerly required. This small amount of paint being exposed to aeration accounts for the tremendous saving in solvent loss.

No Expensive Change Over. A Zahn Oscicator conversion unit can replace your present flow coating system within a few hours.

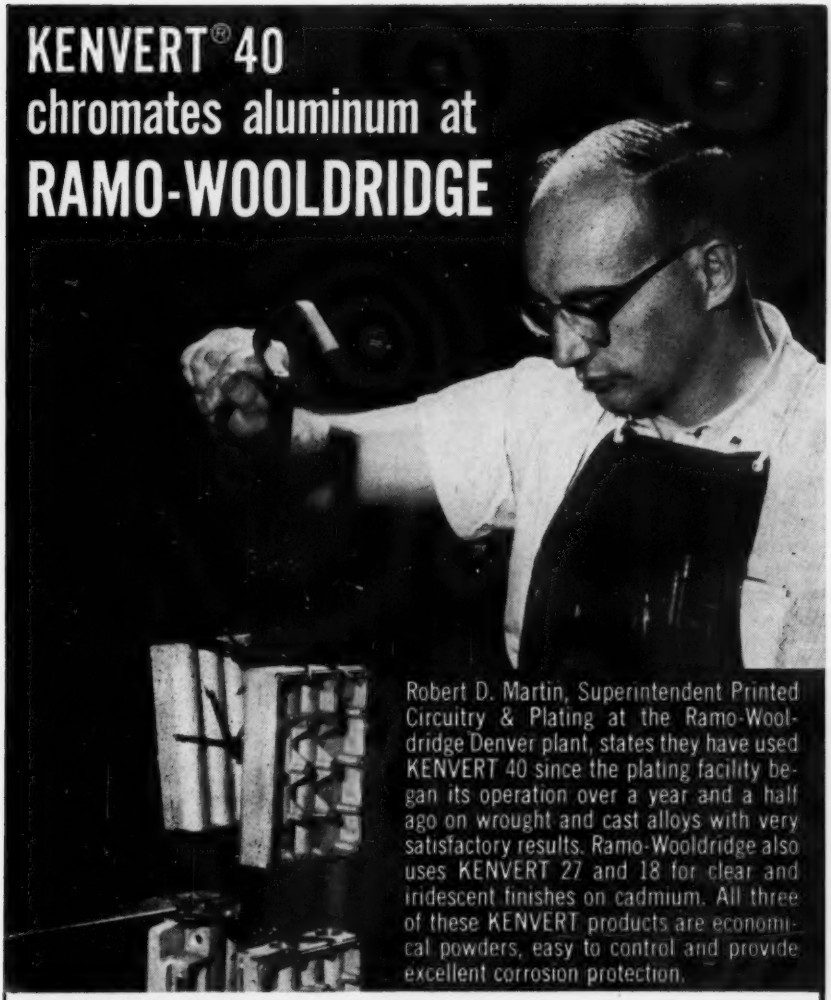
Phone, wire or write for expert Koch engineering assistance. No Obligation.

GEORGE KOCH SONS, INC.
Evansville 4, Ind.

CONVEYORIZED FINISHING SYSTEMS FOR WOOD AND METAL PRODUCTS • FLOW COAT SYSTEMS
DUST AND FUME REMOVAL SYSTEMS • DRYING OVENS • BAKING OVENS • SPRAY BOOTHS

For more data circle 320 on Postpaid Card

KENVERT® 40 chromates aluminum at RAMO-WOOLDRIDGE



Robert D. Martin, Superintendent Printed Circuitry & Plating at the Ramo-Wooldridge Denver plant, states they have used KENVERT 40 since the plating facility began its operation over a year and a half ago on wrought and cast alloys with very satisfactory results. Ramo-Wooldridge also uses KENVERT 27 and 18 for clear and iridescent finishes on cadmium. All three of these KENVERT products are economical powders, easy to control and provide excellent corrosion protection.

Other KENVERT products for aluminum:
KENVERT 45—non-fuming pickle for aluminum castings
KENVERT 46-EC—non-fuming aluminum bright dip additive
KENVERT SLUFF-OFF® X—buffing compound remover

CONVERSION CHEMICAL CORPORATION
99 E. Main Street, Rockville, Connecticut, Phone TRemont 5-3357
Licensees: Nicromatic Ltd., Toronto, Canada
Silvercrown Ltd., London E. C. 1, England

For more data circle 321 on Postpaid Card

SIZEWISE
TIMEWISE
MONEYWISE

You get your best buy with
H-VW-M ECON-O-SHAPE NICKEL ANODES

Designed to Save You Money. New H-VW-M Nickel Anodes retain efficient elliptical shape, but are made thicker to give you more weight per inch . . . 1.32 lbs. Standard anode bags fit . . . less scrap loss per anode too. Result: longer runs that save labor.

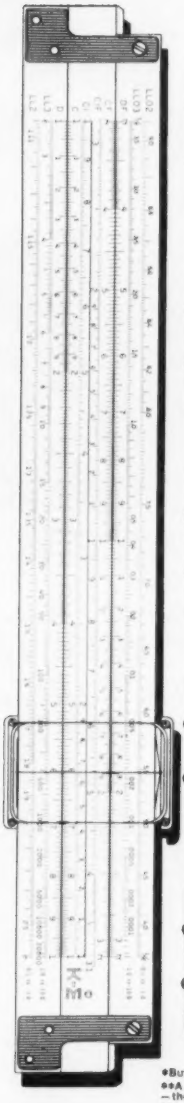
Pre-Cleaned, Ready for Use . . . H-VW-M Nickel Anodes are detergent-washed, reach you free of chips and grease . . . wrapped in waterproof, greaseproof paper. And H-VW-M supplies titanium hooks as well as monel.

For more information, write today to:

Hanson-Van Winkle-Munning Company, Matawan, New Jersey. Offices in Principal Cities
Alert Supply Company is H-VW-M in the West • Los Angeles • San Francisco

H-VW-M
Progress in metalfinishing through advanced processes • equipment

For more data circle 322 on Postpaid Card



METHYLENE CHLORIDE
Boiling range—39.5-42.0°C.
Evaporation rate*—2750
Kauri-Butanol**—115
Flash point—None
Pounds per gal., 20°C.—11.07

CHLOROFORM
Boiling range—60.4-61.4°C.
Evaporation rate*—1160
Kauri-Butanol**—158
Flash Point—None
Pounds per gal., 20°C.—12.3

CARBON TETRACHLORIDE
Boiling range—76.0-77.0°C.
Evaporation rate*—1280
Kauri-Butanol**—92
Flash Point—None
Pounds per gal., 20°C.—13.22

MONO-CHLORO-BENZENE
Boiling range—131.2-132.2°C.
Evaporation rate*—75
Kauri-Butanol**—122
Flash point—84°F.
Pounds per gal., 20°C.—9.22

ORTHO-DICHLORO-BENZENE
Boiling range—176-182°C.
Evaporation rate*—15
Kauri-Butanol**—130
Flash point—174°F.
Pounds per gal., 20C.—10.84

*Butyl Acetate=100.

**A measure of solvent power—the mm. of solvent which can be added to 20 gms. of standard kauri resin solution at 25°C. before the solution turns hazy. Higher numbers usually indicate greater solvent power.

Does your present solvent measure up to these five from SOLVAY?

Compare the type you're now using with these Solvay® chlorinated solvents—and you may discover why the trend is towards these products. For many applications, they provide such important advantages as increased solvent power, reduced cost and greater safety. The chloromethanes are non-flammable and the chlorobenzenes have moderately high flash points.

Solvay—a leader in solvents research and development—makes available Technical Service to help you formulate paint removers and other solvent compounds. We offer literature, guide you in evaluating these Solvay solvents for your special needs. Mail the coupon!

Sodium Nitrite • Calcium Chloride • Chlorine • Caustic Soda • Caustic Potash Potassium Carbonate • Sodium Bicarbonate • Chloroform • Methyl Chloride Soda Ash • Vinyl Chloride • Ammonium Chloride • Methylene Chloride • Carbon Tetrachloride • Snowflake® Crystals • Monochlorobenzene • Ortho-dichlorobenzene Para-dichlorobenzene • Ammonium Bicarbonate • Hydrogen Peroxide • Aluminum Chloride • Cleaning Compounds • Mutual® Chromium Chemicals

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

SOLVAY PROCESS DIVISION 71-80
ALLIED CHEMICAL CORPORATION
61 Broadway, New York 6, N. Y.

Please send your solvents evaluation booklet (OC-5).

☐ See attached letter describing my solvents formulation problem.

Name_____

Position_____

Company_____

Phone_____

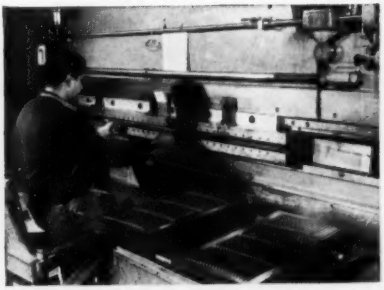
Address_____

City_____ Zone_____ State_____

For more data circle 323 on Postpaid Card

Superior Pre-Paint Protection Racks Up More Sales,

Paint Adhesion of Air Conditioning and Heating Registers, Grilles and Diffusers Insured by Granodine



Precision forming equipment turns coil stock steel into product at Krueger plant.

At major parts producer, Krueger Air Conditioning Corporation, registers, grilles and diffusers are treated with Amchem Granodine before painting to provide them with what Krueger officials agree is a "superior finish that extends the life of our products."

FINISHING PROBLEM SOLVED

Before selecting Granodine as their standard phosphating treatment, Krueger had tried several competitive processes but were unable to sustain the final quality or eliminate rust from painted products. The results—customer complaints and rejects running up to 10 percent of total production.

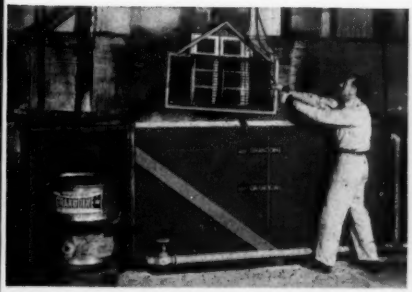
Today, after three years of utilizing Granodine in a five-stage dip phosphating process, Krueger, one of the world's largest manufacturers of registers, grilles and diffusers reports virtually no rejects, increased volume and an all-around better paint finish.

Krueger management-manufacturing team: Left to Right—J. B. Smith, Vice-President of Production; President Leo Krueger; and Ted Kleckner, Vice-President and Comptroller.

COMPARISONS SELL

To tell their superior finish story Krueger

# of Amchem GRANODINE*
Fewer Rejects For Krueger



Operator employing electric hoist, lowers load of Krueger products into Granodine dip tank.

Paint line conveyor carries painted Krueger products from water-washer spray booth to inspection area.

sets up effective side-by-side demonstrations of untreated products and products treated with Granodine at heating trade shows. Customer interest in such displays is high and has led to more sales through graphic illustration of competitive advantages on Krueger's part.

NEW SYSTEM PLANNED

Looking to the future, Krueger is currently adding a new 10 acre, 100,000 square foot plant. High on the planning list is a new and virtually completely automated Granodine line. Amchem engineers have designed a unique conveyorized system utilizing overhead cleaning, rinsing and coating of Krueger products which will achieve significant cost savings and substantial reduction in gas consumption through a colder method in the clean-coat phase of the process.

If you are interested in a *superior finish* for steel products—it will pay you to investigate Granodine, the *superior phosphating* process.

Write for Bulletin 1380B containing detailed information on Granodine for steel . . . the finish that lasts.

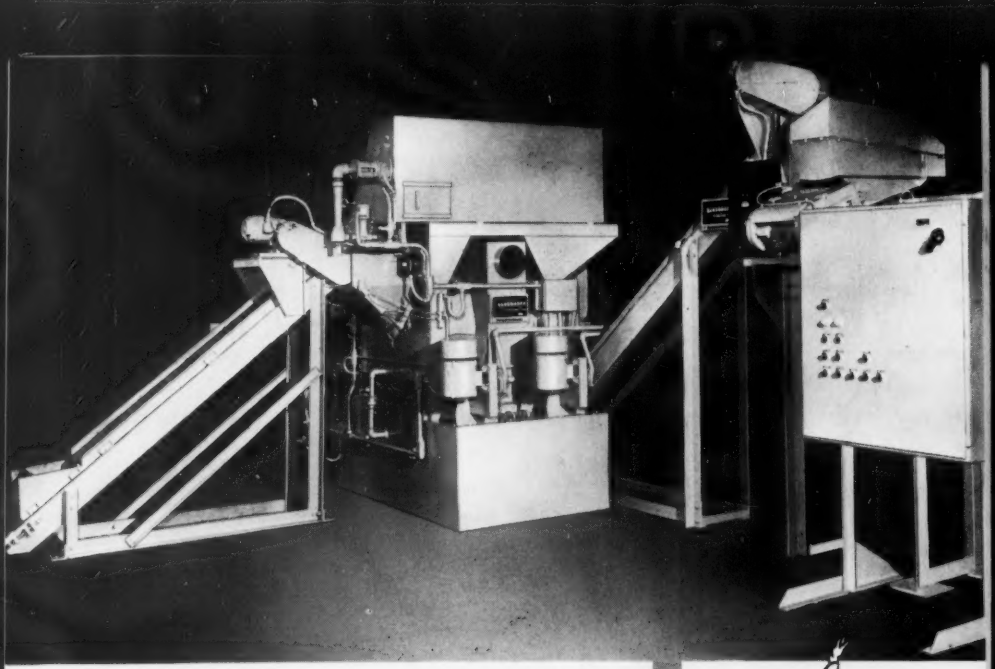
*Granodine is Amchem's registered trademark for the conversion coating chemical used to produce phosphate coatings on steel.

AMCHEM® GRANODINE

Amchem is a registered trademark of **AMCHEM PRODUCTS, INC.** (Formerly American Chemical Paint Co.)

AMBLER, PA. • St. Joseph, Missouri • Detroit, Michigan • Niles, California • Windsor, Ont.

For more data circle 325 on Postpaid Card



New **RANSOMATIC**

washes, deburrs, rinses, and dries 4,100 stampings an hour... automatically!

Saves floor space...handling... and man hours

The stainless steel stampings processed in this Ransomatic were formerly cleaned in a vapor degreaser, and trucked to tumbling barrels for dry deburring. Dust left on the parts frequently jammed the feeder of the machine which automatically assembled the finished appliance.

Now, lost motion and trucking is eliminated. Work is received directly from the presses. The entire cleaning operation is automatic. Equally important, product quality is much improved and inventory control is easier.

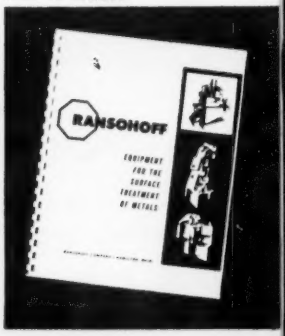
If you have a finishing problem, write or phone us. You'll find we speak your language.

RANSOHOFF/ROTO-FINISH

20 North Fifth Street, Hamilton, Ohio Phone: TWinbrook 3-5813

For more data circle 326 on Postpaid Card

Write for completely indexed 36 page catalog on Ransohoff equipment for the surface treatment of metals.



from the Udylite supplies network you get . . .

QUALITY. QUANTITY. SERVICE

From the moment your supplies order reaches Udylite it is subjected to a complex series of checks . . . to assure you of efficient service and fullest satisfaction.

We check for Quality—experienced personnel avert costly errors by questioning the order. This goes on through the order department, the teletype network and the warehouse until your order is finally placed aboard carrier. Even then, if need be, it will be followed by our experienced traffic department clear to its destination.

We check the Quantity—the size of your order will determine where it can best be filled at any one of 20 warehouses carrying Udylite supplies. Careful analysis here means important savings for you.

The same careful screening of your order takes place regardless of the quantity or dollar volume involved. Find out just how much you can benefit from this Udylite service . . . try it today.

world's largest plating supplier

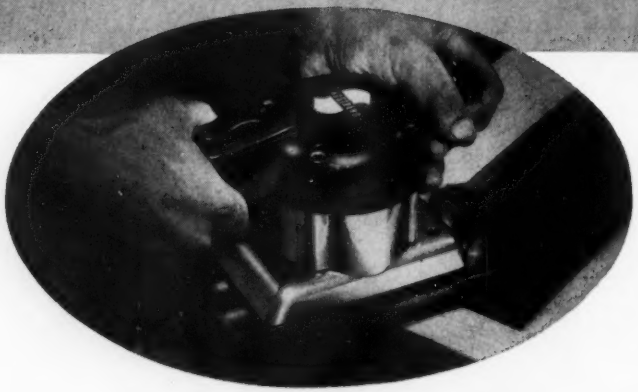
udylite

the udylite corporation • detroit 11, michigan

on the west coast: L. H. Butcher Co.

For more data circle 327 on Postpaid Card

NEW SUNDSTRAND ELECTRIC SANDER



. . . FOR FAST, SMOOTH SANDING OF WOOD AND OTHER MATERIALS

The new Model OE-900 electric power sander, with its extra large sanding orbit and big pad permit rapid stock removal on either wood or metal parts . . . Weighing only 8½ lbs., it is shockproof insulated and built to minimize noise and vibration — all of which combine for *fast, safe, easy* operation.

Sundstrand also has a complete line of air-powered sanders that assure you a size and type for every job. For complete information on Sundstrand Model OE-900 electric sander, write for Bulletin OE-900. Bulletin 2102 tells about Sundstrand air-powered sanders.

YOU SAVE TIME AND MONEY WITH THESE FEATURES:

- **Single-phase motor drive has no belts or gears to wear out or cause trouble.**
- **High starting torque, constant speed operation virtually rule out overloading due to misapplication.**
- **Lifetime lubricated bearings help reduce maintenance.**
- **Sturdy, advanced design eliminates need for commutator, brushes, capacitor, or centrifugal switch.**

MARK OF SUNDSTRAND *RELY-ABILITY*

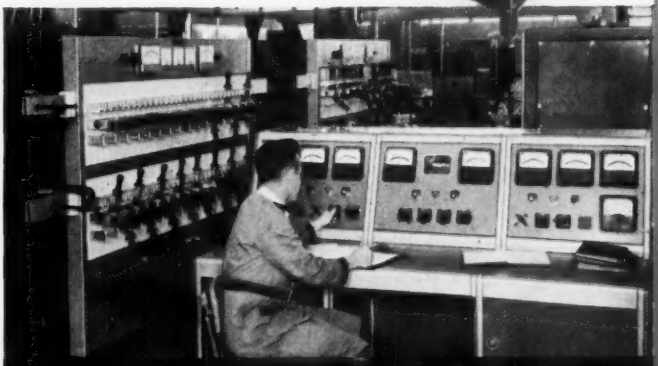
SUNDSTRAND MACHINE TOOL
BELVIDERE, ILLINOIS
Division of SUNDSTRAND CORPORATION

For more data circle 328 on Postpaid Card

Your new Udylite rectifier is

FULL LOAD TESTED

before it leaves our plant



At the Udylite Load Bank Test Center your new rectifier must pass the most rigorous of inspections before you're even allowed to place it in service. Every Udylite rectifier must pass these tests—being made to meet highest product-in-performance standards at *Full Load Capacity*. The tests, run on specially developed equipment, minimize the element of human error and guarantee you finest possible manufacture. Here's what you can count on:

- ★ absolute soundness . . . freedom from defective components.
- ★ elimination of performance standards guesswork by Full Load Test.
- ★ your unit fully checked out . . . ready to hook up and go to work.

world's largest plating supplier

udylite

To gain this truly comforting assurance choose Udylite Rectifiers, the finest electrical equipment, designed expressly for the plating industry by Udylite. Check with your Udylite man or write to:

the udylite corporation

detroit 11, michigan

on the west coast: L. H. Butcher Co.

For more data circle 329 on Postpaid Card

HIGH PRODUCTION...HIGH QUALITY PRODUCT

According to Morgan Adhesives Co., Stow, Ohio, close temperature control in each of the 6 zones is instrumental in achieving quality never before obtainable.

Used for curing and drying self-adhesive print stocks, foils and plastic film papers, the Sly Continuous Oven provides high speed production with a minimum of manpower—primary pay-off and take-up operations are located at one end. Safe handling of hazardous material, around-the-clock operation, and space-saving overhead installation are other features.

Sly designs ovens for every need. Send us your requirements. Put our experience to work for you. Or write for Bulletin 200.

THE W. W. SLY MANUFACTURING CO.

4784 Train Avenue • Cleveland 1, Ohio • Offices in Principal Cities

For more data circle 330 on Postpaid Card

ZERO-MIST

world's largest plating supplier

udylite

Zero-Mist can mean cost savings for you.

There is sound reason for the steady increase in the use of Udylite Zero-Mist over the past six years. Users everywhere have learned that here is the *one* mist suppressant that actually *does what it's supposed to do.*

With Zero-Mist you immediately add cash savings to your budget. Here are the six different ways costs conscious platers effect substantial operating economies with Udylite Zero-Mist.

- Eliminate *completely* the health hazard of dangerous chromic acid mist . . . it beats the most stringent code limitations.
- Save expense of chromic acid loss from mist and drag-out.
- Avoid permeating the outside air with destructive fumes.
- Eliminate contamination of adjacent baths.
- Sharply reduce costly waste disposal.
- Reduce equipment maintenance.

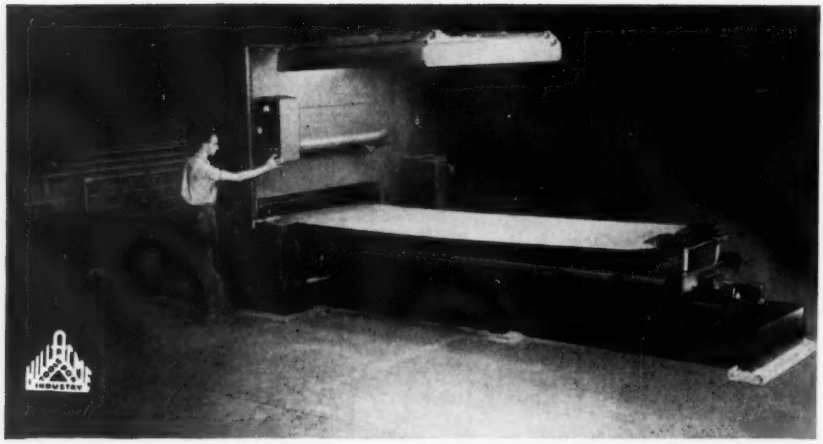
Before you invest in expensive air wash ventilation and blower equipment, ask your Udylite man what Zero-Mist can do for you.

the udylite corporation

detroit 11, michigan

on the west coast: L. H. Butcher Co.

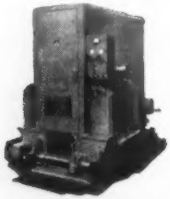
For more data circle 331 on Postpaid Card



HILL Sheet and Plate polishing machine with reciprocating table and vertical 2-ROLL head.

With YOUR OWN HILL Abrasive Belt Grinding and Polishing Machine you can:

Vertical 2-ROLL HEAD. Two rolls, accurately controlled for speeds and pressures with easy adjustment for proper tension of the endless abrasive belt. A variety of grits are available.



HILL Pinch Roll type with vertical 2-ROLL head for polishing strip or single pieces. Can be used singly or in multiple units for line production.

1. Prepare the precise finish best suited to your needs.

2. Insure close inventory control of finished material.

3. Save up to half the cost of buying prepolished sheet and plate.

Increasing volume production points up the advantages of a HILL Grinding & Polishing machine in your own plant. No delay in deliveries — No premiums paid to outside sources for material that ALMOST meets requirements.

HILL 2-ROLL Vertical Abrasive Belt Grinding and Polishing machines are made in two general types for producing superior finishes on flat surfaces as required by manufacturers of decorative plastics, auto bumpers, engravers plates, home appliances, etc. Both types are built in polishing widths up to 60". Larger sizes can be furnished.

THE HILL ACME COMPANY

1209 WEST 65th STREET • • • CLEVELAND 2, OHIO

"HILL" GRINDING & POLISHING MACHINES • HYDRAULIC SURFACE GRINDERS • "ACME" FORGING • TAPPING MACHINES • "CANTON" ALLIGATOR SHEARS • BILLET SHEARS • ROTARY SHEARS • "CLEVELAND" KNIVES • SHEAR BLADES • MATERIAL HANDLING EQUIPMENT

For more data circle 332 on Postpaid Card

IN AND OUT

Is All It Takes To —

• DRY

• PROTECT

For those plating silver, brass, or copper —

Merely out of the last hot water rinse, and in and out of Nikolas **Water Dip Lacquer,** removes all traces of water and deposits a durable transparent coating that will resist fingerprinting, tarnishing and mild scratches that have previously involved unnecessary rejects.

For those using plated parts in production —

Parts finished with Nikolas **Water Dip Lacquer** assure you of untarnished parts, less rejects, and the necessity of ultra careful handling. If the final operation calls for soldering, no preparation is necessary, as the coating provides a chemically clean base metal that assures perfect bonds.

FOR COMPLETE INFORMATION ON

WATER DIP LACQUERS

CALL, WIRE OR WRITE

G. J. NIKOLAS & CO., INC.

Manufacturers of Finest Lacquers Since 1890

2880 WASHINGTON BLVD.
BELLWOOD, ILLINOIS

33 GRAND ST.
BROOKLYN, N. Y.

For more data circle 333 on Postpaid Card

H-VW-M SUPERLUME

THE PREMIUM BRIGHT NICKEL BATH

we admit it...there may be other baths as bright as H-VW-M Superlume

but

SUPERLUME

IS THE MOST DUCTILE AT HIGHEST LEVELLING

SUPERLUME

LEVELS BEST

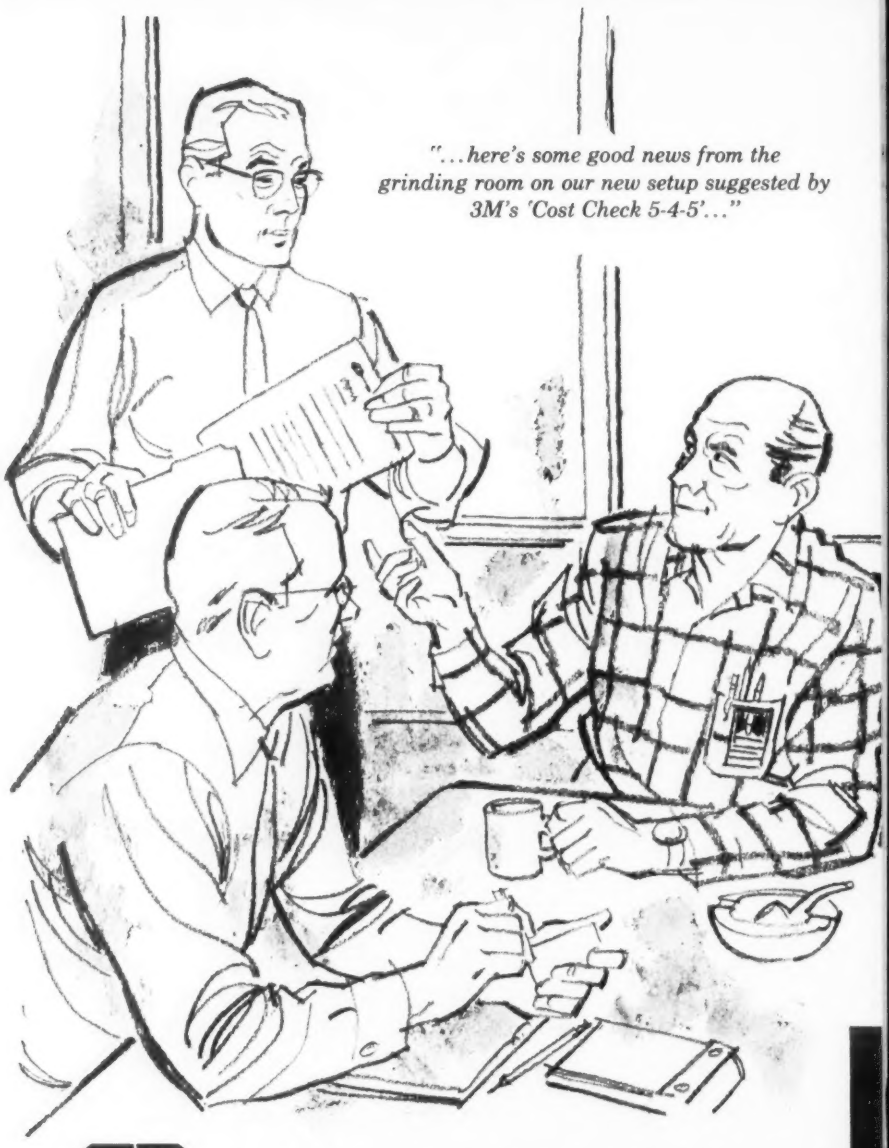
Sure, it costs a little more than conventional bright baths—but no more than other baths that are almost as good as fast plating Superlume. Why not get the best! Write or call for full details.

H-VW-M

Progress in metalfinishing through advanced processes • equipment

Hanson-Van Winkle-Munning Company, Matawan, New Jersey • Offices in Principal Cities
Alert Supply Company is H-VW-M in the West • Los Angeles • San Francisco

For more data circle 334 on Postpaid Card



COST CHECK 5-4-5

3M'S "COST CHECK 5-4-5" PROGRAM CAN HELP YOU DISCOVER:

- ✔ IF YOUR GRINDING CAN BE DONE MORE ECONOMICALLY
- ✔ IF YOUR FINISHING IS AS EFFICIENT AS POSSIBLE
- ✔ IF YOUR POLISHING CAN BE DONE FASTER AND BETTER

3M Announces....

COST CHECK 5-4-5

a cost analysis program for grinding, finishing, polishing

3M's new "Cost Check 5-4-5" program can help point the way to lower costs and higher profits for you. And it's easy to do with the Cost Check review form we provide for your use.

All you do is jot down the facts requested on the simple job description page, and you're ready for a review and brief discussion with your local 3M Representative.

Here's the expert assistance 3M's "COST CHECK 5-4-5" offers you:

* 3M's background of 58 years of experience in producing new and better coated abrasives for every phase of industry.

* 3M's technical knowledge of advanced methods, based on creative research in new applications of coated abrasives for every type of industrial job.

* 3M's research programs that provide the latest products and applications that are available anywhere—to help you cut costs, improve profits.

* 3M's trained representative who can call upon this vast array of experience and talent to answer your questions and give you on-the-spot recommendations.

Take Advantage of 3M's new "Cost Check 5-4-5" service without obligation. Fill out and mail in the coupon and your Cost Check kit will be sent to you promptly.

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

3M COMPANY

3M COATED ABRASIVES

3M COMPANY, Dept. ABE-80,
900 Bush Ave., St. Paul 6, Minn.

Send me my "COST CHECK 5-4-5" Kit.

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

For more data circle 335 on Postpaid Card

Give ear to the saga of prosperous Dan,
A plater who switched to the DARCO® Plan.
He's ended his troubles
with blisters and bubbles
And he ships home his profits by truck and by van.

Keep your plating bath clean . . . without shutting down . . . by "pre-coat" filtering with DARCO activated carbon once a month. Twice a year, give the bath a complete DARCO purge. You'll save anode metal, reduce rejects and get consistently better plating. Order from your Distributor . . . and write for a copy of "Modern Activated Carbon Practice", which describes the DARCO Plan.

DARCO IS MADE BY

ATLAS CHEMICALS DIVISION
ATLAS POWDER COMPANY
WILMINGTON 99, DELAWARE
In Canada: **Atlas Powder Company, Canada, Ltd.**
Brantford, Ontario, Canada

DARCO
REG. U. S. PAT. OFF.

For more data circle 336 on Postpaid Card

Speed

Diamond CPA 1800 speeds up chrome-plating time!

DIAMOND CPA 1800 is *the additive* for chrome plating which expands tank capacity, improves throwing power and the metallurgical character of chrome plate. It's the modern teammate of DIAMOND CHROMIC ACID!

And, when you order your chromic acid from Diamond, you get the latest facts on *all* phases of chromic acid application, research and testing. Facts that can help you lick a production problem, quality problem, or research problem.

So, call your Diamond Representative, or your nearby Diamond Distributor, now. They can help you get quality chrome-plating jobs *every time*, based on our broad experience with plating. DIAMOND CHROMIC ACID is available where and when you need it. DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

Diamond Chemicals

For more data circle 337 on Postpaid Card

CLAIR MACHINES

Boast of their part in the superb finish common to flatware of *"Community"* fame; and they express their appreciation to *ONEIDA SILVERSMITHS* for the engineering counsel and assistance that have contributed so much to the efficiency and wide acceptance of *Clair Surface Finishing* equipment.

COMMUNITY
The Finest
Silverplate »

« *Song of Autumn Pattern*

Recognition is also extended to those other engineers who have likewise cooperated so generously throughout the development and refinement of all *ELEVEN highly specialized and diversified* CLAIR models of Versatile Surface Finishing Machines.

CLAIR
MANUFACTURING CO., Inc., OLEAN, N.Y.
Offering the Most VERSATILE Line of Surface Finishing Machines

Whatever YOUR Surface Finishing problem, you will find some one of the 11 CLAIR models a solution.

For more data circle 338 on Postpaid Card

ALEMITE'S HYDRASTAT SYSTEM DELIVERS PAINT MORE ECONOMICALLY THAN OTHER SYSTEMS...

Here's why!

Air is never mixed with paint because air is used only to drive the paint pump. Using less air to deliver more paint, the Hydrastat System operates more economically, more efficiently.

Less airborne paint residue! You save up to 40% in materials! Less clean up! Lower exhaust requirements and less fire hazard!

Reduced overspray and bounce-back because only paint, traveling at high velocity, leaves nozzle. It is concentrated at the point of application. Corners and channels are more easily reached with less waste.

Decreased equipment requirements because there is less air consumption. Equipment is compact, efficient, and easily allows you to operate two or more spray guns from one pump.

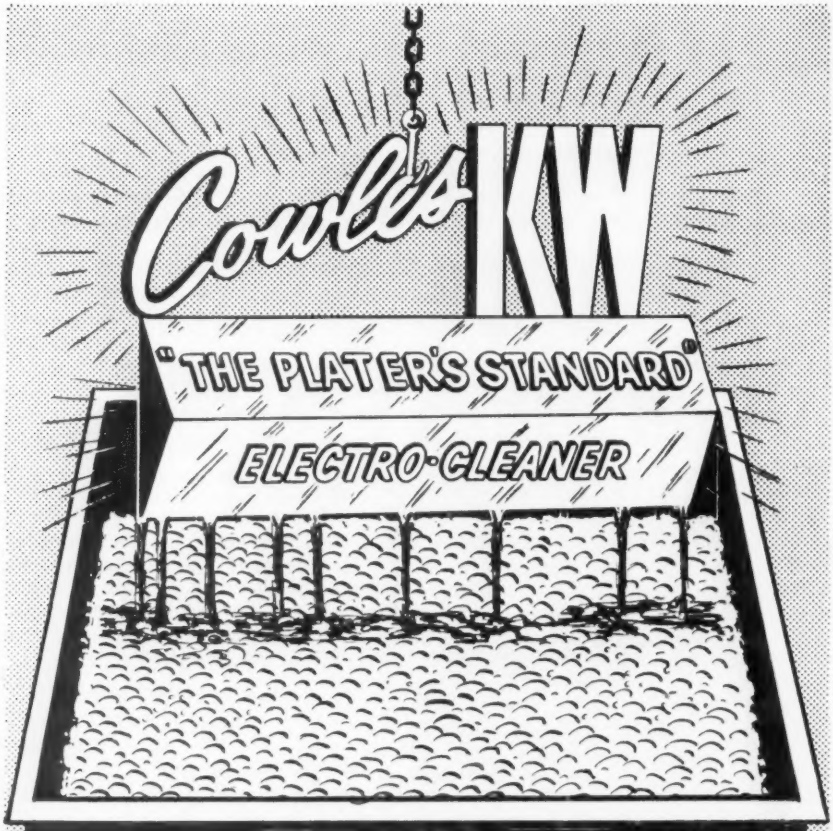
Symbol of SW Excellence

ALEMITE DIVISION
STEWART-WARNER CORPORATION

Write for free illustrated literature!

Dept. AF-80, 1850 Diversey Parkway, Chicago 14, Ill.

For more data circle 339 on Postpaid Card



Tops in

PERFORMANCE
ECONOMY
SAFETY

Learn more about it send for technical data sheet on Cowles KW today!

Cowles **CHEMICAL COMPANY**

7016 Euclid Avenue • Cleveland 3, Ohio

For more data circle 340 on Postpaid Card

Editor Visits Japan

When this issue of PRODUCTS FINISHING reaches you, your editor will be in Japan again for the first time since 1952. He'll be visiting electroplating shops and plants and discussing plating and finishing problems with Japanese platers and metal finishers in Tokyo, Nagoya, and Osaka.

This visit is not being made (as was the previous trip in 1951) "By Direction of the President . . ." but by invitation of a group of Japanese electroplaters.

Discussion with Japanese electroplaters who have visited the United States recently indicates that a great deal of progress has been made in the eight years since I left Japan. I'm sure that the men who have improved their methods and their shops will be proud to show me the improvements that have been made.

The next issue of PRODUCTS FINISHING will carry a brief account of my trip, with comments on the current state of the Japanese electroplating and finishing industry. You may find it interesting to compare Japanese practices with those in your plant.

The information secured on this trip will form the basis of a talk to be presented before the Chicago Branch, A. E. S. Annual Meeting on January 28, 1961. This will be part of a discussion of "Plating in Foreign Lands." American finishers are interested in knowing whether or not foreign plating is better than ours, and if there are finishing practices in use abroad that could profitably be adopted here in the United States. Perhaps I can get some answers to these questions.

Brief stops will be made also in Honolulu, Formosa, and Hong Kong, and perhaps some appraisal can be made of the extent and nature of the finishing industry in those localities.

All in all, it should be an interesting trip, and I'll be reporting on it in subsequent issues of PRODUCTS FINISHING.

Ezra A. Blount

—EDITOR

Oneida Silversmith's "Melon" (Community Plate) five-piece tea and coffee set includes ornate kettle, stand and oblong tray.

New "Song of Autumn" (Community Plate) place setting is typical of fine silverware made by experts at Oneida Silversmiths.

About Oneida

ONEIDA SILVERSMITHS originated in 1848 when a group of New England farmers formed the original Oneida Community. With "perfectionism" as their ideal, this group first tried farming, but soon turned to the manufacture of weldless chains, canned fruits and vegetables, silk thread and game traps.

In 1877 the manufacture of silverware was added to the growing business and in 1880 the company name was changed to Oneida Community, Ltd. In 1935 the name was shortened to Oneida, Ltd. The company is now named Oneida Silversmiths, to emphasize the fact that this organization is one of the largest producers of silver plated tableware and hollow ware and sterling flatware in the world.

Oneida Silversmiths operates plants at Sherill, New York, Niagara Falls, Ontario, Canada and Sheffield, England.

The company has grown and prospered for 122 years as a result of strong leadership and adherence to the business philosophy that all kinds of work are honorable, and that every man who contributes to the welfare of his group deserves to share in the benefits his work has helped to earn.

Knives, forks and spoons . . .

Finishing Flatware

Not even a little roughness is allowed. It takes special machines and techniques to meet these standards . . .

By DANIEL GRAY
Research Leader
Oneida Silversmiths, Oneida, N. Y.

No industry demands more from the finisher than the cutlery and tableware industry when it comes to surface finish and quality standards. Scratches and rough plate are just out of the question. To meet such standards requires silversmiths with years of experience; special machines; skilled operators; and special techniques. Let's take a trip through Oneida Silversmiths, Oneida, New York, and examine this leading company's procedures for turning out sterling, Community Plate, Oneidacraft Stainless and other well-known types of silverware and cutlery.

In discussing the finishing operations at Oneida Silversmiths, it is convenient to divide the company's products into five classifications: stainless steel flatware; stainless steel knives with silver plated handles; silver plated nickel-silver flatware; sterling silver flatware; and silver plated copper and brass hollow ware.

Stainless Steel Flatware

Stainless steel flatware entering the finishing room, after fabrication, is first deburred on abrasive belt machines, then buffed for color. All deburring is done with machines, except for the ends of the tines on the forks and the tips of the knives. These are hand deburring operations.

The fork comes from the forming press with a bar across the ends of the tines. This bar remains until the machine deburring operations on the edges are completed. Then the bar is removed and an abrasive belt deburrs the tines. Hand deburring of the ends of the tines is the final deburring step.

Cutting and coloring operations that follow deburring are performed on Clair automatic buffing machines (Figs. 1 and 2). Special fixtures hold each type of flatware. Each of these fixtures holds more than 30 pieces of flatware during its trip beneath the buffing wheels. Each buffing machine is adjusted to perform a certain buffing operation. Once set, the machine carries the loaded fixture beneath the

(continued)

"Some pieces require two or more buffing operations to cut and color all surfaces."

buffing wheels in such a way that all surfaces are buffed at the desired pressure and for a preset time. Some pieces require two or more buffing operations to cut and color all surfaces.

Spoons, for instance, are first buffed on a machine called a "double heeler," which finishes the bottoms of the spoons; then a Clair machine performs the cut-down operation on the bowl; another machine performs a cut-down on the handle; a fourth machine colors the handle (pieces must be transferred from end to end); finally the bowls are colored by a Clair machine.

Cotton bias-type sewed buffs are used. Buffing compounds are made to Oneida's specifications. Two types are used: one for cutting, one for coloring. The machines that do cutting operations (Fig. 1) are equipped with harder buffs than those used for coloring (Fig. 2).

When the buffing operations have been completed, the stainless steel flatware is put on a conveyor where it is inspected and then wrapped for shipment.

Fig. 1—One operator runs a battery of three Clair automatic buffing machines in which the first buffing operation is done on stainless steel knives. Operator sprays liquid buffing compound on buffs using cup gun shown in foreground. Knives are loaded in special fixtures (30 to 36 per fixture) for buffing. Operator unloads knives from fixtures onto belt conveyor, shown in right foreground, which carries knives past the inspectors and to the packers who box knives for transfer to final buffing station in the process.

Control Lab for Polishing and Buffing Materials

Oneida has a control lab, supervised by Leon Carpenter, that is equipped to check the products the company uses for surface finishing. Wheels and compounds are tested by trial runs on two lathes.

Thread count of the cotton used in most of the company's buffing wheels is checked in this lab; felt wheels are weighed to determine moisture content. Another instrument determines whether the felt is of the density ordered. Abrasive grains are checked for presence of slivers, blocky or irregular grains, oversize particles, proportion of fines.

(continued)

Fig. 3—Flatware which has been polished and buffed is loaded on specially designed racks for silver plating. Operator in background is hanging the loaded racks on the conveyor of the automatic silver plating machine. Note that the plating racks are hung quite close together on the conveyor.

Fig. 2—Three operators and three buffing machines put the final color on stainless steel knives. Operator at left is loading knives into the special buffing machines. Unloading of completed knives is done by operator at right. Machines are equipped with automatic compound sprays which travel back and forth to spray buffing compound on the wide gang buffs. These buffs are softer than those used on the machines shown in Fig. 1. Knives are ready for inspection, wrapping and shipment after color buffing operation is complete.

". . . all the racks in one tank form what is practically a continuous cathode."

Silver Plated Nickel-Silver

Silver plated flatware is formed from nickel-silver basis metal, which is deburred and buffed in a manner similar to the method used for stainless steel flatware.

The buffed nickel-silver flatware comes to the plating room in box loads. Workers attach the pieces to specially designed racks (Fig. 3), which are then hung on hangers. The plating machine is constructed so that when the racks are in the solution, the adjacent racks (not flatware) touch one another. In this way all the racks in one tank form what is practically a continuous cathode.

The conveyor for this plating machine is specially built for Oneida's operation. Conveyor carriers, which hold the hangers, are moved horizontally by a rotating screw. The spine of each carrier fits within the threads of this long screw. As the screw rotates, it moves the carrier forward. Motor-driven chains move the carriers vertically, so that they may be transferred from tank to tank. The carriers can be lifted from the long tank of silver plating solution at any point. This is the way thickness is controlled—the longer the carrier stays in the tank, the more silver is deposited. Current density remains

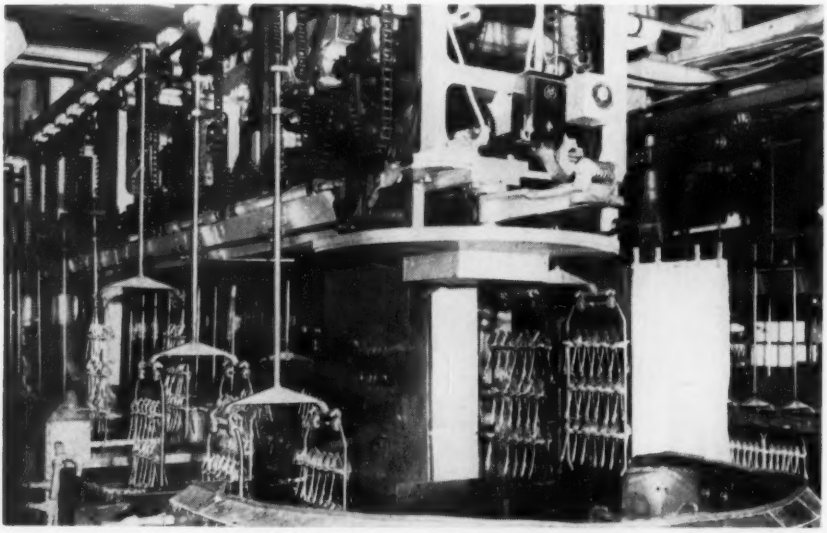


Fig. 4—Closeup of one end of automatic silver plating machine designed and built by Oneida engineers. Plating cycle is so designed that parts being silver plated are kept wet by a fine mist water spray while traveling around the end of the plating machine.

about the same no matter what thickness of deposit is required. And rate of horizontal motion also remains constant. The point at which the carriers are lifted from the long tank (and the plating time) may be changed to secure thicker or thinner deposits.

Anodes in this tank are shielded by cloth "curtains" that extend below the depth to which articles are immersed during plating. These curtains prevent anode particles from floating onto the work and causing roughness.

Current for the silver plating tank is varied according to the type of pieces being plated. Since the articles vary in shape and size, it is impossible to keep the cathode area constant. Thus current must be adjusted each time the type of article being plated is changed. Current is adjusted so that current density remains the same, however, and thickness is controlled by length of plating time rather than variation in current density and conveyor speed.

All tanks in this machine are rubber lined.

Plate Thickness

Oneida doesn't try to put an average or even thickness on silverware. The company recognizes that some areas and some pieces get more wear than others, and deliberately racks and plates so that these areas get more silver. Serving spoons, for example, will not have as thick a plate as teaspoons. And the back of the teaspoon is plated with 2½ to 3 times as much silver as the bowl.

Overlay Plating for Teaspoons

As further protection for the backs of teaspoons, the back of the bowl gets another plate after it leaves the large plating machine that plates the entire spoon. This is done in a machine especially built to immerse only the back of the teaspoon bowl in the plating solution.

Parts coming out of the big silver plating machine are immediately reracked in a horizontal position in the special chain conveyor holders that take them through the overlay plating machine (Fig. 6). No activation is required. Only a light wire brushing (wet) is necessary to remove fingerprints left from reracking.

Length of time spent in the overlay

(continued)

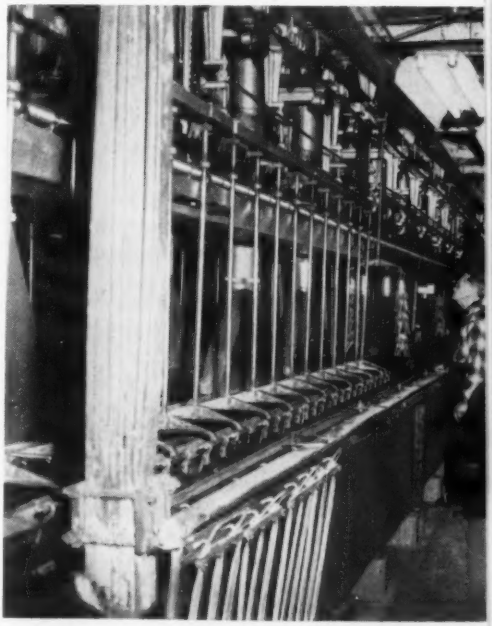


Fig. 5—Daniel Gray, research leader, electroplating laboratories, inspects a rack of silver plated ware that has just been lifted from the silver plating tank of the automatic plating machine. Feature of the machine is that it can be set to lift racks at any point.

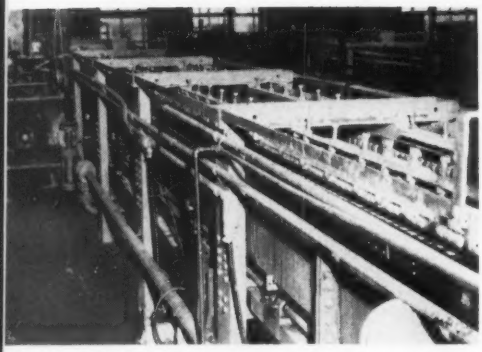


Fig. 6—View of one of the overlay automatic silver plating machines which deposit silver on the "heels" of spoons. Parts are racked in conveyor which carries them through the plating solution, then dips under the machine to return to the loading station. Solution is circulated and filtered continuously. Temperature regulator and heat exchanger in the line make it easy to control solution temperature.

machine varies. The amount of silver deposited on the back of the spoon bowls in this machine roughly doubles the thickness that was already there. Thus the total thickness on this area is six or seven times that on the rest of the spoon.

As the spoons leave the overlay machine they are rinsed in several steps, including recovery rinses and waste rinses (the waste rinses go to the waste treatment plant for removal of cyanide and recovery of silver). Then they pass through a heater and compressed air blow-off and are unloaded.

The silver plating solution in the overlay machine is continuously circulated and filtered. Rate of circulation is critical and must be controlled closely. Temperature is maintained at the desired point by automatic temperature regulators and a heat exchanger. Tanks are stainless steel.

Silver Plating Stainless Steel Knife Handles

Two plating machines at Oneida deposit silver on the handles of stainless steel knives. One of these is about 40 feet long, the other is 50 feet long.

The operator of a knife-plating machine (Fig. 7) attaches the knives to special fixtures that are mounted on a chain conveyor which carries the knives through the various cleaning and plating solutions. Only the handles are plated. Tanks are rubber lined.

Plating Solution Analysis and Control

Silver strikes and cleaners are analyzed every four hours. The silver plating solutions are analyzed once a week for cyanide and carbonates, once a month for silver.

Final Color Buffing

Silver plated flatware, whether it be the completely plated spoons and forks, or the stainless steel knives with silver plated handles, is transported from the plating departments to the final color buffing department. Here, Clair automatic buffing machines just like those previously described buff the silver plated articles to a high lustre and color. Each product is then subjected to an exacting inspection, following which the acceptable ware is wrapped and packed for shipment.

Sterling Silver

Since there is no plate on sterling silver tableware, the finish is produced by hand and mechanical polishing (Fig. 8) and buffing. A battery of four Clair buffing machines is used to cut and color some of the pieces. Others require hand polishing and buffing. Several kinds of standard finishes, produced by different coloring compounds, may be specified.

Fundamentally this operation involves producing a bright surface on a soft metal without destroying designs, edges, and detail. Pieces with complicated shapes or designs are cleaned in agitated cleaning machine between buffing and final coloring.

Hollow Ware

Copper and brass are used as basis metals for Oneida's hollow ware. Surface finishing of the hollow ware is about 50 per cent hand work. Some Acme semi-automatic buffing machines are used for buffing the flat

(continued)

Fig. 8—Polishing and buffing of sterling silver requires the utmost in skill and care. Here polisher is carefully polishing inside edges of fork tines on an abrasive belt.

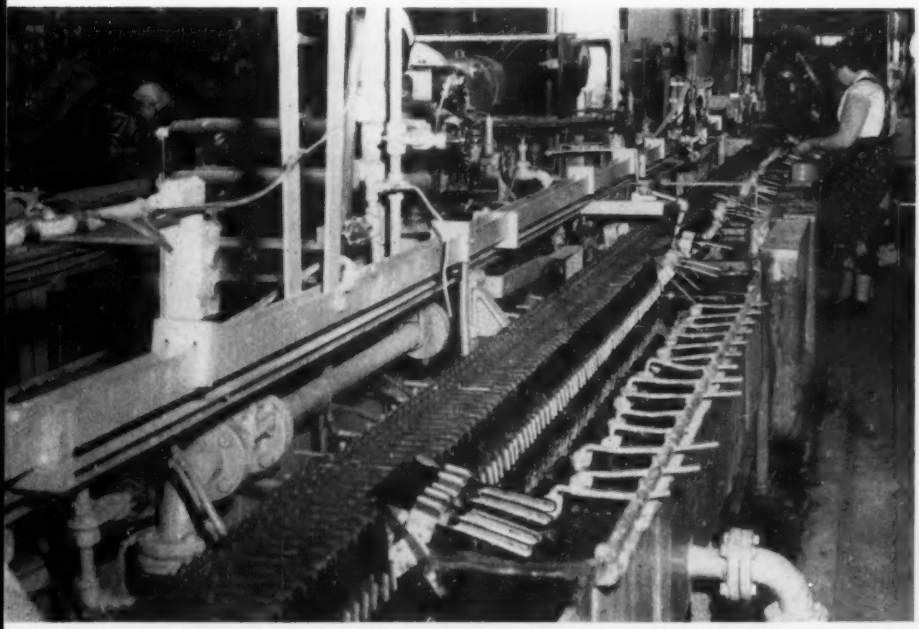


Fig. 7—Machine for automatic plating of silver on handles of stainless steel knives. Knives are loaded individually on racks (right background) which are a part of the processing conveyor. Knives must be positioned carefully so that each will be immersed to the same depth in the solutions. As can be noted in left foreground, each rack or hanger lifts to carry knife from one processing tank to the next. Tank in center foreground is the nickel flash tank. Level of each solution must be the same so that knives will be plated uniformly. Solutions are filtered continuously. Temperatures are controlled by automatic temperature regulators. Plated knives are unloaded at a point near loading station.

Fig. 9—Buffing of some copper or brass trays prior to silver plating is done on Acme semi-automatic buffing machine. Spray guns, foreground, apply liquid buffing compound to the buffs during the buffing cycle.

Oneida Silverplating . . .

surfaces (Figs. 9 and 10), flanges, oblong parts, and so on. But as the hollow ware is assembled, surface finishing becomes a hand operation (Fig. 11)—finishing handles, spouts, knobs, feet, and so on.

The silver plating of hollow ware is carried out in much the same manner as that outlined for flatware. Because of the many shapes and sizes of parts, this plating operation is not automatic.

Following plating, the parts return to the buffing department and are hand buffed to a high color and a brilliant finish before being inspected and packed for shipment.

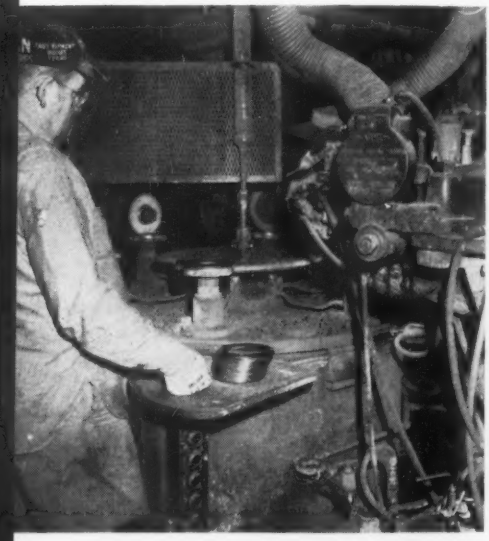


Fig. 10—Automatic buffing of circular rings is done on a three-station Acme machine. The table carrying the fixtures indexes under the three buffing heads. Liquid buffing compound is sprayed on the buffs automatically.

Fig. 11—For larger, more complicated trays and other products, all polishing and buffing must be done by hand. These finishers have the skill required for this exacting work. (Photographs by PRODUCTS FINISHING.)

Waste Treatment and Metals Recovery

All rinse water is treated before it leaves the plant. Copper content is held to 0.1 p.p.m. maximum; cyanide is destroyed completely by chlorination. All silver wastes are treated with chlorine to destroy the cyanide and precipitate the silver as silver chloride. Then silver is reclaimed from this precipitate, and returned to the refinery. The waste treatment plant also must remove zinc, copper, nickel and chromium from the plant's effluent.

All buffing dust and used buffs are burned to recover silver. About $60,000 worth of silver is recovered in this way each year.

★ ★ ★ ★ ★

Report on Conductivity Testing of Zinc-Dust-Pigmented Coatings. By D. S. Nantz, Wright Air Development Center, U. S. Air Force. Order PB 131435 from Office of Technical Services, U. S. Department of Commerce, Washington, D. C. 27 pages. Price, 75 cents.

This report describes a new conductivity test which can be used to determine the best zinc concentration, film thickness, and drying time for any vehicle pigmented with zinc. The test can be used as a basis for formulation of zinc-rich coatings which provide galvanic protection to steel.

Among conclusions derived from studies of several test procedures: zinc-rich coatings can provide excellent galvanic protection if the coating is properly pigmented with zinc and is sprayed at the proper thickness; the coatings are similar to a metal conductor, except that the specific resistance varies with film thickness and concentration; the amount of zinc is dependent on the vehicle used; the resistance of the zinc-pigmented film changes considerably on curing, and time is required for the resistance to stabilize.

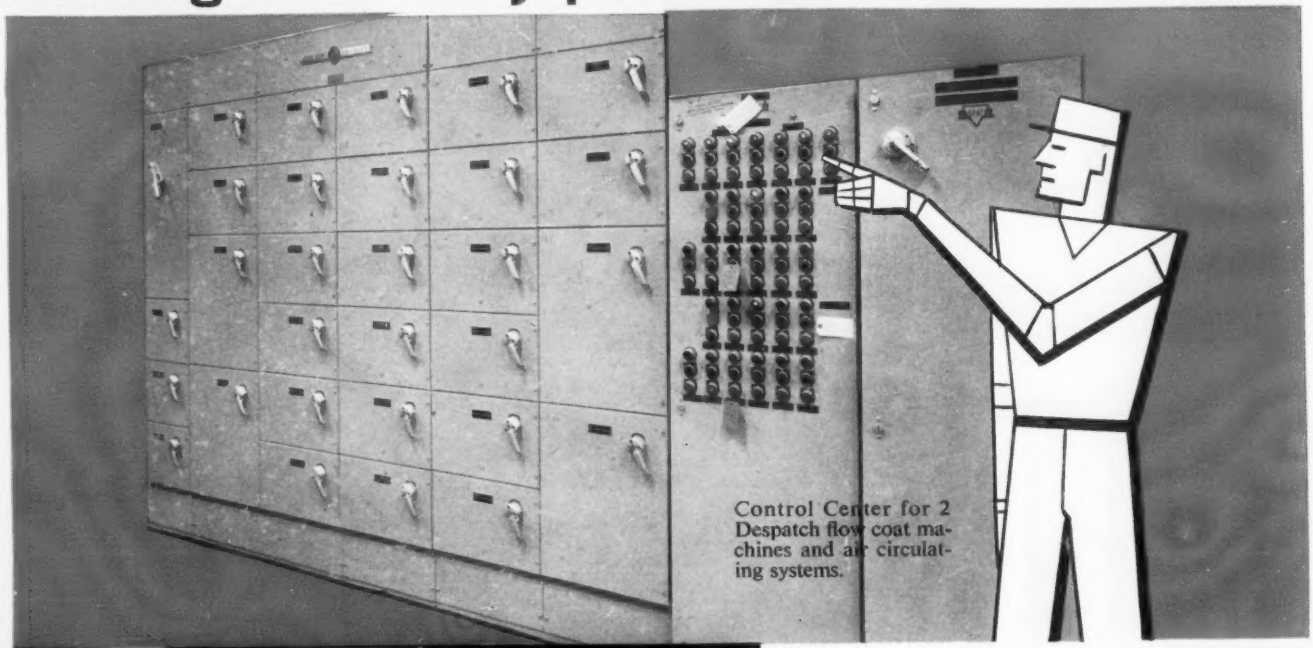
Water and Waste Treatment Bulletin. Vol. 4, No. 1 of "Multi-Matter," a publication of Multi-Metal Wire Cloth Co., contains interesting and informative articles on water and waste treatment. Articles entitled "New Developments in Liquid Treatment," "Junior Deionizer Requires No Regenerating," "Unique Disposal System for Electroplating Bath Wastes," "Treating Water by Softening or Demineralizing," "General Considerations in Industrial Waste Treatment," "Water Treatment and Cellite Filtration," and "Efficiency of Diatomite Filtration" are included.

Copies of this bulletin available from Multi-Metal Wire Cloth Co., Inc., 1350 Garrison Ave., New York 59, New York.

★ ★ ★

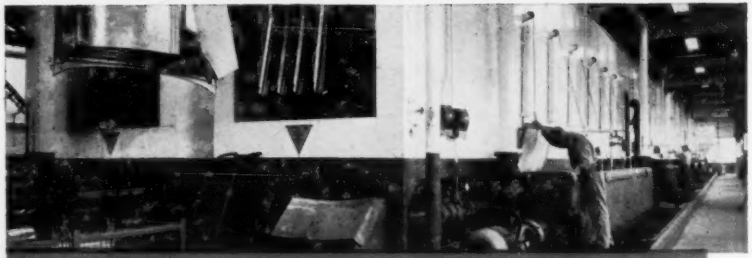
Coated Abrasives Catalog. Catalog price list and general information bulletin No. 10 contains detailed information on the company's line of coated abrasives: sheets, rolls, belts, discs, specialties. 56 pages. Michigan Abrasive Co., 11900 E. Eight Mile Rd., Detroit 5, Mich.

Herding more body parts down the finish line

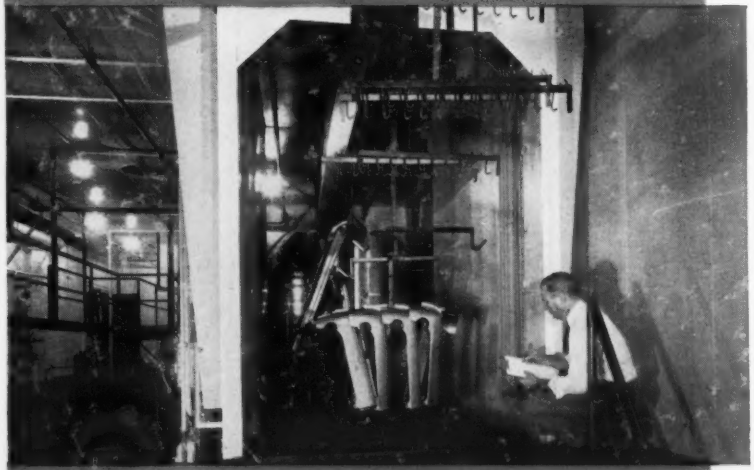


Control Center for 2 Despatch flow coat machines and air circulating systems.

Modernization Speeds Production on 1960 Automobile Finishes with DESPATCH SYSTEM



WASHED-TREATED Seven stages of ultra-efficient processing are provided by this sheet metal parts washer rustproofing machine, on auto makers body part assembly line.



FLOW COATED Parts enter one of the Despatch flow coat machines controlled from the panelboard shown in top illustration. Drip area for this 40 ft. machine is 560 ft. long.

Smoother, long lasting finishes are achieved with reduced labor costs in this recent Despatch installation. This up-to-date finishing system, manufactured and installed for a leading automobile producer, provides . . . better rustproofing . . . smoother more evenly coated application of paint or primer . . . more economical use of finishing materials . . . and reduces direct labor costs by introducing new efficiency and eliminating hand prefinishing operations.

Rarely are two finishing problems identical . . . yours may differ considerably from those faced by this major auto producer. A Despatch analysis of your finishing system can determine what system is best for your product. Despatch experience has been solving the finishing problems of industry since 1902. It will pay you to take advantage of a Despatch finishing analysis in your plant. Write today for new bulletin on Despatch engineered systems for modern finishing of metals.

DESPATCH
OVEN
CO.

DESPATCH OVEN COMPANY
611-8th Street S.E.
Minneapolis, Minnesota

For more data circle 341 on Postpaid Card

HARSHAW

CYNOREX

BRIGHT COPPER PLATING PROCESS

The only copper bath with these 3 features

2

1

SIMPLE* OPERATION

Cynorex is the only copper bath with just one non-metallic addition agent. You'll have no juggling of two or three brighteners.

*See Webster's Definition

2

NO CHROME CONTAMINATION PROBLEM

Cynorex is self-purifying.

3

CARBON FILTRATION WITHOUT ADDITION AGENT LOSS

Cynorex can be continuously circulated thru carbon.

HARSHAW

There are more features we'd like to explain to you ...

contact us at any of the offices listed below.

THE HARSHAW CHEMICAL COMPANY

1945 EAST 97th STREET • CLEVELAND 6, OHIO

CHICAGO 32, ILLINOIS • CINCINNATI 13, OHIO • CLEVELAND 6, OHIO • DETROIT 28, MICHIGAN • HASTINGS-ON-HUDSON 6, N.Y. • HOUSTON 11, TEXAS • LOS ANGELES 22, CALIF. • PHILADELPHIA 48, PA. • PITTSBURGH 22, PA.

Plating Processes also available through the following Foreign Distributors or Manufacturers:

HARSHAW CHEMICALS LTD., LONDON, ENGLAND
ARMALITE CO. LTD., TORONTO, CANADA
L. VAN DER HOORN, UTRECHT, HOLLAND
ROBERT BRYCE & CO. LTD., MELBOURNE, AUSTRALIA

And many Agents throughout the world

For more data circle 342 on Postpaid Card

What Vacuum Metallizers Electrostatic

Principles of electrostatic painting; how the equipment operates; tips on how to get best results; advantages and disadvantages . . .

By JOHN SCHARNBERG and T. E. HAYDEN

Bee Chemical Co., Lansing, Ill.

Electrostatic spraying—almost a magic word in the finishing industry—should be of great interest to metallizers. Often it reduces paint consumption substantially and saves labor costs. It makes possible spray application of tinted top coats—with consistent color—and uniform application of textured base coats over irregularly shaped parts.

The purpose of this paper is to acquaint you with the principles of electrostatic spraying, the basic types of equipment, the advantages and disadvantages of the system, and to instruct in paint adjustment. Knowledge of these fundamentals may eliminate misconceptions and encourage a more complete study of the possible advantages of electrostatic spraying in your shop, whether for use in connection with vacuum metallizing or for more conventional coating jobs.

What Is Electrostatic Spraying?

Electrostatic spraying is the method whereby electrically charged atomized paint particles are guided toward oppositely charged parts by electrostatic attraction. Through the use of a transformer and rectifier tubes a d.c. potential of 90,000 to 100,000 volts is established to charge and precipitate the paint particles on the parts being painted. Paint, leaving the atomizer, is electrically charged and is thereby attracted to the oppositely charged part in much the same way as dust is attracted to a piece of plastic.

The driving force behind charged paint particles is a combination of the electrical attraction and the mechanical speed given by rotating atomizers, where these are used, or by the atomizing air pressures, where

Should Know About Spraying

John Scharnberg

T. E. Hayden

normal spray painting guns are used.

The basic advantage of the system is electrical attraction, which directs and steers the paint particles toward their target; paint which otherwise would miss the part and would become overspray is guided until it reaches the part and serves a useful purpose.

Electrostatic spraying can be used only if the parts to be painted are electrically conductive or can be made so. For this reason electrostatic application of a coating is generally confined to metal objects. There are some exceptions. Coatings can be applied electrostatically over vacuum metallized plastic parts because the vacuum deposited aluminum film is sufficiently conductive. Wood can be sufficiently conductive for electrostatic spraying if the moisture content is high enough. Wood also can be given a preliminary conductive coating by dipping so that subsequent coats can be sprayed electrostatically. Theoretically a conductive media can be used as a filler in a plastic resin, thus allowing a plastic part to be conductive enough for electrostatic spraying. A few examples of this are known; however, generally the introduction of such fillers may alter the physical properties of the base resin. Therefore, for the most part, we will confine our discussion to metal articles.

Basic Types of Electrostatic Spray Equipment

Available automatic electrostatic spraying equipment can be divided generally into two classes. In the first class are those types which use ordinary automatic air guns to atomize the coating material and then employ electrostatic fields to charge these particles by ion bombardment and to precipitate them on the articles being coated. These types will be referred to as the "air atomization" electrostatic type.

In the second class are those types which do not employ any air in the material atomization but rely upon the action of the electrostatic field for atomization and for charging and precipitation. Mechanical rotating elements such as disks or bells are relied upon in these methods to present the coating material to the

(continued)

". . . overspray and its collection becomes a problem only at the start and finish of a run."

field in the form of a thin film at a sharp, charged edge or point of high electrical voltage gradient. In these methods, which are referred to as "airless electrostatic types," the rotating element is maintained at high voltage; thus the particle, as it is formed from the liquid film, already has an electrical charge.

In Fig. 1 one modification of the air-atomizing type is shown. In this case the atomizing gun, which is generally operated at an atomizing air pressure of 10 to 12 p.s.i., is placed so as to spray directly at the objects on the conveyor from a position at one side of the conveyor. On its way to the parts the paint passes through a U-shaped pipe frame which is the charging electrode of the system. It is charged to 100,000 volts potential and this is one terminal of the electrostatic field which exists between the charging electrode and the article. Paint becomes charged upon entering this field, is attracted to the part.

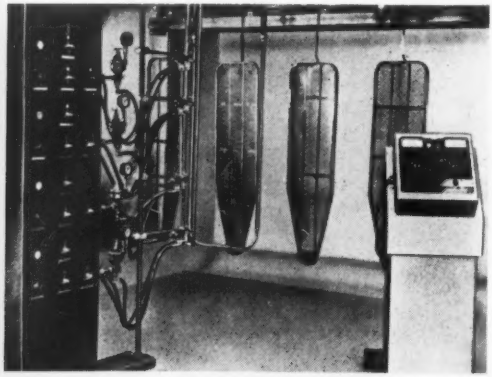


Fig. 1—Air-atomizing electrostatic painting installation. (Photo courtesy Ashdee Electrostatic Div., Industrial Electronics Co., Inc.)

In another form of the air-atomization type, the charging electrode is a relatively large, plane-type electrode which extends parallel to and on either one or both sides of the parts being painted. In this case, the guns are arranged so as to introduce the coating material into this extended field in a direction parallel to the electrode and therefore alongside of the row of articles. The particles also become charged by the action of the electrode, but are attracted to the work over an extended area. Any particles not precipitated on the first part will have a high probability of being trapped by the second, third, or fourth part down the line. Increased efficiency is thus to be expected from this form.

Momentum imparted to the particle by the air blast at the time of atomization may also carry the particle out of the action of the field. For this reason, the air atomizing methods may not be as efficient as those of the airless electrostatic type.

Figure 2 shows a schematic drawing of the essential components in one form of an airless electrostatic installation. The necessary elements include the voltage supply, the fluid pump, the atomizer, and the parts. The atomizer is in the shape of a cup and has its opening facing the article. Paint is introduced at the base of the cup and, as the cup revolves, the paint is moved by centrifugal force to the cup edge. Under

(continued)

Because...	**SYNFLEX** is lighter	**SYNFLEX** is economical
SYNFLEX is flexible	**SYNFLEX** gives smooth flow	**SYNFLEX** has closer tolerances
SYNFLEX avoids operator error	**SYNFLEX** is translucent	**SYNFLEX** is impervious to solvents
SYNFLEX for hot or cold spraying	**SYNFLEX** simplifies cleanup	**SYNFLEX** has high strength
SYNFLEX resists abrasion	**SYNFLEX** comes in 500′ reels	**SYNFLEX** handles all finishes

SYNFLEX UNIVERSAL PAINT SPRAY HOSE

is distributed through

GRACO

A-2390A

Call your local Graco representative for all your paint spray hose needs.

SYNFLEX®
Products Div.
Samuel Moore & Co.
Mantua, Ohio

For more data circle 343 on Postpaid Card

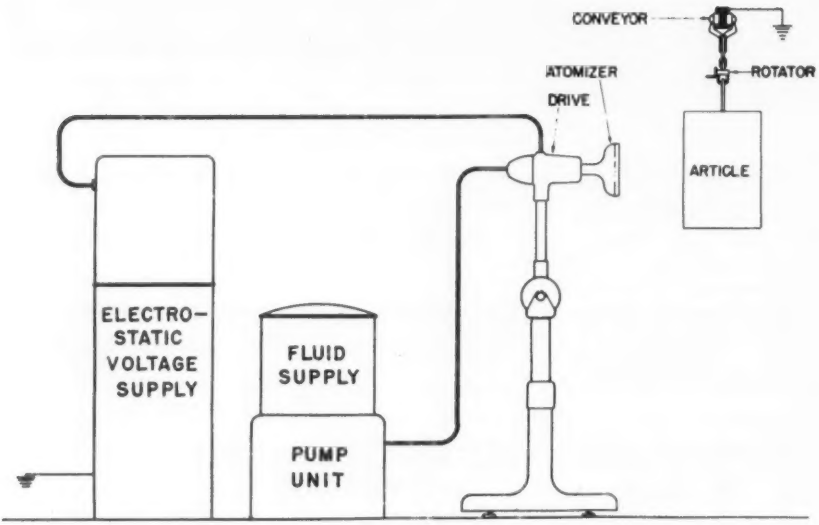


Fig. 2—Schematic drawing of Ransburg No. 2 Process (bell-type) airless electrostatic painting installation. Charged paint spins off the atomizer, seeks article on conveyor.

the action of the high-voltage field and the centrifugal forces, the paint is atomized into fine particles which are charged and thus move to the article.

Although this method is intended only for use in operations which are conveyorized, a recently introduced electrostatic hand-operated gun uses a bell-type atomizer which is constructed so that it is safe to operate. This device extends the possibilities and efficiencies of electrostatic painting to those cases where it is advisable to retain the features of a hand operation.

Figure 3 is a schematic diagram which shows a typical installation of another form of an airless electrostatic unit—the reciprocating disk type unit. The necessary elements are also shown: the disk, the voltage supply, the paint pump, and the objects. In addition, this diagram also shows the spraying enclosure, exhaust system, and the loop in the conveyor. Primarily, the enclosure and exhaust system are needed only to carry away solvent vapors.

Since most electrostatic units are almost 100 per cent efficient in the use of paint, overspray and its collection becomes a problem only at the start and finish of a run.

The loop in the conveyor is needed so that the paint coming off the entire circumference of the disk will be used. As the parts move about the loop, they pass around the disk and thus the coating gradually accumulates on the parts. A wide variety of parts of different shapes can be handled on a unit of this type. Large flat sheets must be coated one side at a time in successive loops although narrow panels can be com-

"It is therefore necessary to insulate the paint supply when the coating material is conductive . . ."

pletely coated by indexing them 180 degrees at the back of a single loop. Small irregularly shaped parts can be rotated constantly as they are carried around the loop.

In the airless electrostatic systems the disk or cups are charged. It is therefore necessary to insulate the paint supply when the coating material is conductive; otherwise the unit will be shorted to ground. This is the case for most metallics and bronze type materials.

Figure 4 shows an installation of a reciprocating-disk unit. Here the reciprocation is produced by a hydraulic cylinder which causes the disk to move up and down over the face of the articles being coated.

In this system the paint is fed through a tube to the center of the charged disk; rotation causes it to flow to the outer edge of the disk, where it is presented to the high voltage field as a thin film; at this point,

(continued)

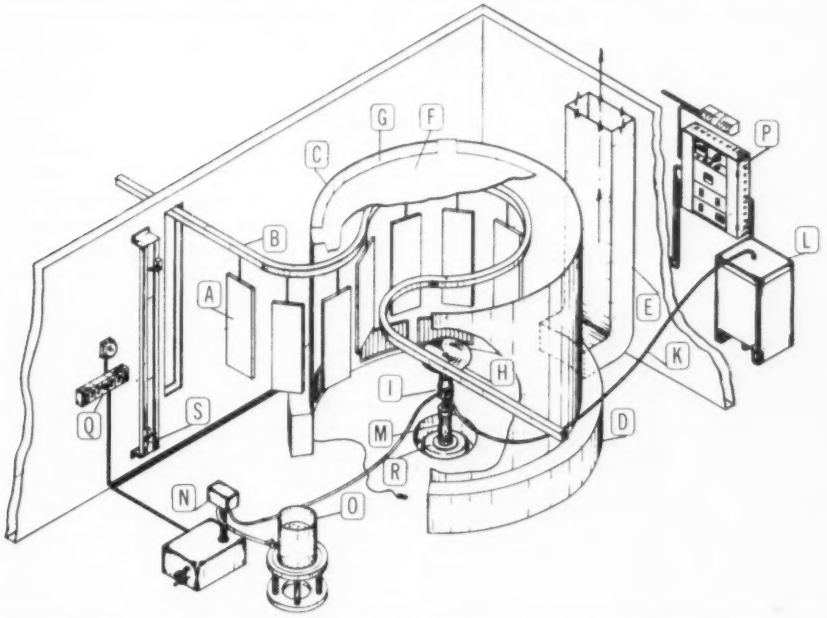


Fig. 3—Schematic drawing of Ransburg No. 2 Process reciprocating disk electrostatic painting unit. Letters shown represent the following: A, parts; B, conveyor; C, spraying enclosure; D, plenum; E, exhaust stack; F, enclosure top; G, top opening; H, disk; I, disk motor; K, high-voltage cable; L, high-voltage supply; M, insulator; N, paint pump; O, paint supply; P, control panel; Q, start-stop buttons; R, reciprocator; S, stroke control.

the paint is atomized by the field and the rotation into a spray of fine, charged particles. The disks are usually rotated at 900 to 3600 r.p.m.

Material Handling and Job Set-up

To understand fully the necessity for good engineering in electrostatic paint application, we must first understand the basic behavior of a static charge upon a part.

For practical purposes, the electrostatic attraction is quite uniform on the surface of a flat part; hence one area of the part is attracting paint as strongly as adjacent areas.

Where the surface is not flat, its edges will generally have greater attraction because the field is stronger at these points. Extremely sharp points, on the other hand, will not be coated as well because such points recharge the material and it is thus repelled. The electrostatic field likewise causes the oversprayed material to return to areas of the part not directly exposed to the atomizer. This phenomenon, known as "wrap-around," will cause coating to be collected on the back side of the parts. This feature of electrostatic spraying makes it possible to automatically spray many parts by this method which cannot be sprayed by conventional means.

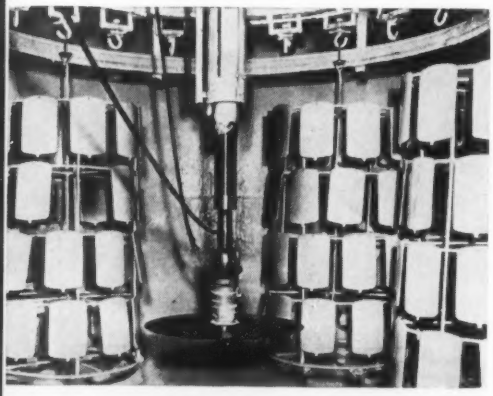


Fig. 4 — Ceiling-mounted Ransburg No. 2 Process reciprocating disk used to paint racks of small parts moving past on conveyor.

The metallizer must keep these characteristics of electrostatic spraying in mind when considering the use of this method. Efficient loading in the metallizer often requires that the parts be hung on racks or spiders. These same racks can be used for the painting operation if the field characteristics are taken into consideration in positioning the parts on the racks. Oddly shaped parts having raised and indented surfaces may require special racking to ensure uniformity of the base coat and the top color coat—so important in vacuum metallizing.

Parts should be mounted on wires or spring clips away from heavy members of the rack. This prevents the rack (which is also a good grounded collector) from robbing or stealing paint from areas of the part adjacent to the holder. On the other hand, parts having areas which are shaped so that they attract too much material can be mounted with these areas toward the heavier members of the rack so that they will be shielded and thus get less coating. Parts on the rack can likewise be positioned with respect to each other so that a mutual shielding will produce a more uniform coating.

In this method, as in other spraying methods, the racks are also coated and periodic stripping is necessary to avoid excessive build-up or outgassing problems.

These methods can be used on either conveyorized or batch-type

operations although maximum advantages are only realized where the system is conveyorized and conditions of application can be controlled and reproduced.

It is quite important to schedule the parts going through the unit so that the area to be coated is nearly the same on each rack of parts. This is necessary because the electrostatic unit delivers a given volume of paint; hence if one rack has a coatable area of three square feet and the next rack a coatable area of only one square foot, the latter will probably receive too much paint, which will run and sag.

Power Required

Some units operate on 110 volts, 60 cycles, single phase. More elaborate models operate from 220 to 440 volts, 60 cycle. The power output is usually 90,000-120,000 volts, 5 milliamperes, direct current.

Safety

Most equipment is designed to produce no more than 10 milliamperes on a dead short, which prevents any serious personal hazard. Properly installed and operated equipment, meeting with the regulations of the National Board of Fire Underwriters, has demonstrated its safety during years of operation.

Paint Formulations

The coating material is important to the success of application by electrostatic methods. Although considerable effort has been directed toward developing various methods of improving the sprayability of the coating materials, no one measurable characteristic has been found which correlates with electrostatic sprayability. Also, there is no single adjustment which can be made which will give a particular paint optimum

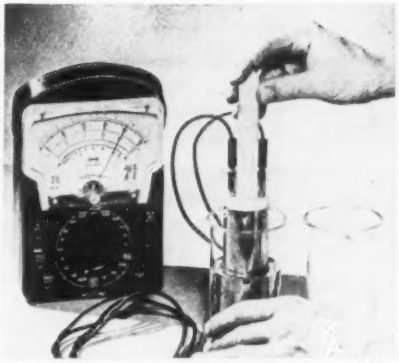


Fig. 5—Ransburg Model 219 Paint Resistance Tester: paint resistance is a guide to good sprayability. (Illustrations 2, 3, 4, 5 courtesy Ransburg Electro-Coating Corp., Indianapolis.)

sprayability. In general, the paint is being thrown over much greater distances (12 to 24 inches) than with conventional hand spraying. Because of this, a higher proportion of slow-drying solvent should be included in the thinner or paint formulation.

The viscosity of the paint should be between 18 and 25 seconds on a Zahn No. 2 cup. Adjustments comparable to those made in hand spraying can be made. Dry spray and orange peel can be corrected by slower solvents, more paint flow, or slower rate of application. Runs and sags indicate that a faster solvent and less paint should be used. Since atomization is generally produced by electrical forces alone, however, the electrical nature of the paint becomes important and must be considered in adding solvents. The adjustment of paint resistance through appropriate solvent selection is often required.

Figure 5 shows a Ransburg paint-resistance tester. This instrument has shown that if the resistance of the

(continued)

Table I

PAINT-THINNING SOLVENTS LISTED IN ORDER OF INCREASING POLARITY

Non or Low Polarity	Medium Polarity	High Polarity
Mineral Spirits	Ethyl Acetate	Methyl Ethyl Ketone
V M & P Naphtha	Methyl Acetate	Methyl Isobutyl Ketone
High Flash Naphtha	Butyl Carbitol	Acetone
Xylol	Isophorone	Isopropryl Alcohol
Toluol		Diacetone Alcohol
Methylene Chloride		Methyl Alcohol
N-Butyl Acetate		Nitromethane

paint is maintained between 50,000 and 1,000,000 ohms, sprayability usually will be satisfactory. However, there are exceptions to this rule. A coating may fall within these limits and spray well; likewise, it may fall outside and still spray well. Hence the instrument is used as a guide rather than a rule.

Most solvents used in the paint industry fall into two general groups, polar and non-polar. In general, resistance is increased by use of solvents of low polarity and decreased by use of solvents of high polarity. Table I lists a group of common solvents in order of increasing polarity.

Poor sprayability is often the result of improper atomization of the coating. Obviously, correct atomization is quite important when applying metallizing base coats because it precludes objectionable orange peel or other film defects. Poor atomization of tinted top coats often results in a mottled appearance; if the atomization problem is severe, some areas of a part may not receive paint, particularly if the part is quite irregular in shape.

The degree of atomization often can be determined by observing paint as it leaves the edges of a disk or cup. If the paint fans out when leaving the edge, with much the same appearance as with an air spray gun adjusted to a fan spray, then good atomization is being obtained. Atomization can be checked on a partially coated test panel or by observing the over-spray "wrap-around" on the reverse side of a part. If the wrap-around overspray appears to be very finely divided, rather than in large globules, then atomization is good.

Advantages of Electrostatic Application

The most prominent advantage of electrostatic spray is the saving in the quantity of paint used. Because most of the paint is applied to the parts, the only coating material wasted is that which is attracted to the rack supporting the parts being coated. Savings up to 50 per cent of the material required by hand spray are not uncommon with electrostatic spraying, and in some cases savings have reached 75 per cent.

Another feature is the ability of the

"A consistent product results from the controllable and consistent nature of the automatic process."

equipment to coat almost any size or shape of part, whether it be round, flat, or of irregular shape — if the design of the part is not too radical. With proper engineering, the paint film will be deposited uniformly; hence tinted top coats can be applied with consistent color over the entire part. Textured base coats also can be applied uniformly. For example, wrinkled metallizing base coats or other special-effect paints which depend upon constant film thickness to achieve the same size of wrinkle or uniformity of pattern can be successfully applied to parts having irregular surfaces. A consistent product likewise results from the controllable and consistent nature of this automatic process.

It is easy to change colors or materials in most electrostatic units. The pumps and lines hold a fairly small volume of paint, which is easily flushed with thinner.

Automatic operation is quite important. After the units are set up and running, only minimum maintenance or overseeing is required; hence labor costs are held to a minimum. Frequently only one operator per shift is needed and then only a small portion of his time is spent at the unit.

Disadvantages of Electrostatic Application

The primary restriction of electrostatic spraying is the limitation to spraying only those parts which are electrically conductive. Hence many materials, such as plastics, cannot be so painted.

Another major disadvantage is the difficulty of spraying inside a cup-shaped part or other deeply recessed area. We mentioned before that greater attraction will be exhibited at edges of a part; hence on a cup-shaped part pointed toward the atomizer there is greater attraction on the rim of the part than on the inside bottom of the part. Therefore, paint will tend to collect at the lip rather than being drawn into the recessed area. This condition can be partially overcome by reducing the voltage. In effect, the tendency is to reduce the influence of electrostatic forces, allowing the mechanical forces to take over and to throw the coating inside the recess. This approach is not always entirely successful.

Another disadvantage is the impracticality of masking areas which are not to be painted without using many masks of complicated design.

For practical purpose the use of electrostatic spray is somewhat limited. In general, only metal parts and large runs of one part or smaller but continual runs of similarly shaped parts are practical. This is true because special racks are usually required and it is necessary to schedule parts having nearly the same coatable area. In addition, each job must be individually engineered for optimum results.

Proprietary vacuum coaters or those metallizing many parts such as cap pistols, trophies, and so on, will find more advantages than those accustomed to a multitude of smaller runs.

How C.M.W. Electroplaters Reduced Manual Handling

Burnishing now takes less time and effort in this shop . . .

By FRANCIS MAGNUSSON
and
MARTY LeCLAIR
C. M. W. Electroplaters
Rochdale, Mass.

Looking for ways to cut costs, C. M. W. Electroplaters recently installed a completely new finishing department. Since we have many different parts to handle (Fig. 1) in individual batches, complete automation is not feasible. But the equipment in the new setup has cut out much of the manual handling.

We finish hardware for luggage and children's toys. Much of it is brass plated. To achieve the bright finish that's required for parts of this nature we deburr the parts prior to plating, (nickel or brass), ball burnish them afterwards, complete the job by lacquering.

Two of the machines in this department — one for cleaning and deburring and the other for ball burnishing—are primarily responsible for the reduction of manual operations. They take baskets of small parts, automatically load them into the work chambers, do the work required, discharge the parts dry. All the operator does is press a button to begin the cycle.

To see how these machines fit into the new finishing facilities, let's examine the finishing procedure at C. M. W.:

The stampings come to the finishing department in shop barrels. A power loader picks up the basket of parts, dumps it into a dual-purpose Ransomatic cleaning and deburring machine (Fig. 2). Inside, parts are tumbled in cleaning compound to clean and remove burrs, rinsed with fresh water and then in rust inhibitor, and finally dried with hot air and

Fig. 1—These parts are typical of the daily production at C. M. W. Electroplaters.

discharged into clean shop barrels.

Some of the clean parts go directly to the plating area; others require a secondary operation (they are cleaned and deburred so that they will not interfere with the operation of an automatic feeder used in the secondary operation); still others go to the assembly department for sub-assembly operations (cleaning prior to subassembly improves working conditions and efficiency here).

Parts that have gone through subassembly or secondary operations again go through the Ransomatic cleaning-deburring machine, then join the other parts that are ready for plating.

In the plating area workers dump the shop barrels into plating barrels. These barrels carry the parts into a cleaning tank, then into a water rinse, an acid rinse, and finally into either nickel or brass plating solutions.

After the parts have been plated they are dumped into either of two perforated skips, which are kept immersed in cold water until enough parts accumulate to make up a load for the burnishing barrel (Fig. 3). An automatic loader then dumps the load of parts into the Ransohoff automatic burnishing machine.

In the burnishing machine, the work is brightened by 1500 pounds of ball cones and a burnishing compound. When the burnishing cycle is complete, the barrel automatically stops, reverses its rotation and discharges the mixture of parts and burnishing balls into a separating screen.

(continued)

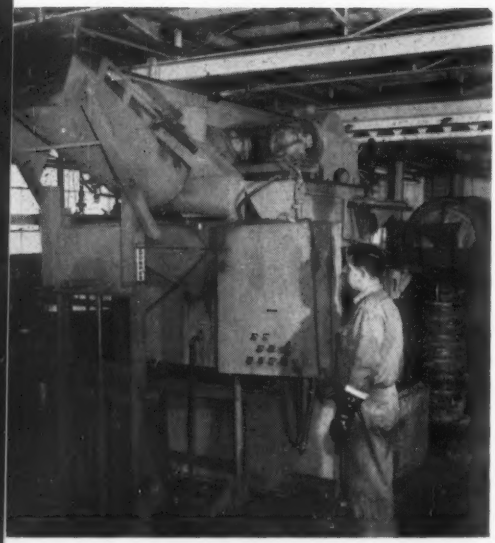


Fig. 2—Automatic loader dumps a shop barrel full of parts into the dual-purpose Ransomatic cleaning and deburring machine. Parts emerge dry, with surface protected by a rust inhibitor applied inside the machine.

The burnishing media falls into a retaining cone, while the work is rinsed and fed into a drying barrel. Burnishing the nickel plated parts takes five minutes plus five minutes for drying—a total of ten minutes. Brass plated parts require 35 minutes plus five minutes for drying. Tumbling in heated corn cob meal dries the parts. This barrel also reverses rotation when the cycle is complete and discharges the work. The parts are caught in boxes. They are now ready for inspection and lacquering.

In the lacquering room, the work is submerged in clear, air-dry lacquer. A centrifugal painting machine spins off the excess lacquer, then the parts are placed in trays to dry. If the work tends to nest, we send the parts through the lacquer application twice to help prevent spotting out.

The new system of burnishing has cut manual handling to a minimum.

(continued)

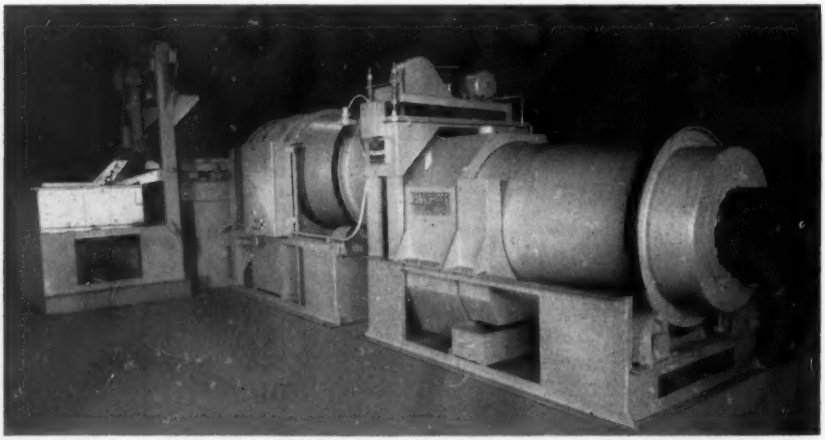


Fig. 3—Ransohoff burnishing machine is fed from perforated skip at left of photo. Parts are burnished, rinsed, dried, discharged at right into boxes, ready for lacquering. Burnishing compound recirculates automatically. (Photos courtesy Ransohoff/Roto-Finish.)

Peel Booths Clean with "LIQUID ENVELOPE"

the *original* strip coating

No muss, no fuss. No waste of high-priced labor. "Liquid Envelope" booth coating costs less than hand scraping or grease-papering. Safer too! Dry film won't burn or support combustion.

New Users: Convince yourself. Order 5 gallon test-sample at drum-lot price.

BETTER FINISHES & COATINGS, INC.

268 Doremus Avenue, Newark 5, N. J. • 2014 East 15th St., Los Angeles 21, Calif.

DISTRIBUTED BY

Abrasive & Supply Co., Detroit, Mich.
Air Engineering Corp., Baltimore, Md.
Avril, Inc., Reading, Pa.
Bay State Spray Equipment Co., Springfield, Mass.
Bison Corp., Canton, Ohio
Black Manufacturing Co., Baltimore, Md.
Bradley Paint Co., Los Angeles, Calif.
Budeke's, Inc., Baltimore 31, Md.
Buffalo Equipment & Chemical Co., Buffalo, N. Y.
Colonial Auto Supply, Norristown, Pa.
Carmac Chemical Co., Pittsburgh, Pa.
Dean & Barry Co., Columbus 15, Ohio
Ellicott Paint Co., Inc., Buffalo 3, N. Y.
Emery Waterhouse Co., Portland, Me.
Franklin Supply Co., Providence 3, R. I.
General Spray Equipment Co., Needham, Mass.
Grapek Co., Newark, N. J.
Gray Co., Newark, N. J.
H. & W. Chemical Co., Inc., Rochester, N. Y.
Hovey Spray Equipment, Philadelphia, Pa.
Hubbard Co., Los Angeles, Calif.
Kellerman Paint Co., New York, N. Y.
Koehler Rubber & Supply Co., Cleveland 15, Ohio
Lea Manufacturing Co., Waterbury, Conn.
The Leonard Company, St. Louis, Mo.
Nelson Industrial Supply Co., Grand Rapids, Mich.
Mid States Industrial Corp., Rockford, Ill.
Vic Miner Co., Toledo 2, Ohio
George V. Morris Co., Philadelphia, Pa.
National Mill Supply, Inc., Fort Wayne, Ind.
O'Donohue Sales Co., Milwaukee 12, Wis.
Paints & Lacquers, Inc., Chicago 22, Ill.
Paterson Paint & Wallpaper Co., Paterson, N. J.
Protective Coatings, Inc., Tampa 6, Fla.
Quad Machinery & Supply Co., Little Ferry, N. J.
Ralco Sales Co., Raleigh, N. C.
C. N. Reed Co., Hanover, Pa.
R. W. Ronton & Co., Cleveland, Ohio
C. I. Smith Co., Washington 9, D. C.
Spray Equipment Co., Los Angeles, Calif.
Spray Way Co., Los Angeles, Calif.
Su Par Corp., Brooklyn, N. Y.
Geo. Swatek, Inc., Ridgefield, N. J.
Tanner and Co., Inc., Indianapolis, Ind.
Harold E. Young, Westbury, Long Island, N. Y.

FOREIGN DISTRIBUTORS

Jenson & Nicholson, Ltd., London E. 15, Eng.
G. Herring (Aust.) Pty., Ltd., Willoughby, S.W., Aust.
Bishop Products, Ltd., New Toronto, Ontario, Can.
Sidney Roofing & Paper Co., Ltd., New Westminster, B. C., Can.

For more data circle 538 on Postpaid Card

It has also eliminated handling of burnishing media and hand riddling of media from parts (particularly difficult since many of the parts have pockets). Less rinse water is required, since flow is controlled automatically. Consumption of burnishing compound also has been reduced, since the new machine has provisions for recirculation of the compound.

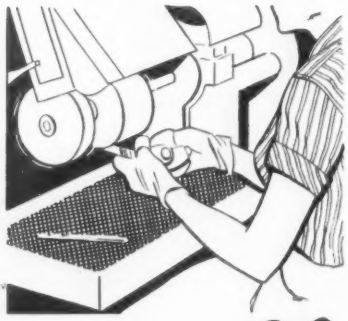
★ ★ ★

Electroless Nickel Plating. A publication of material presented in an A.S.T.M. Symposium on Electroless Nickel Plating (Catalytic Deposition of Nickel-Phosphorous Alloys by Chemical Reduction in Aqueous Solutions). Published by the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price, $2.50.

This symposium is an attempt to gather all the known useful information about electroless nickel plating under one cover. Includes chapters on history, chemical reaction, characteristics of deposits, processing procedures, advantages and limitations, applications, test methods, patents, bibliographies.

Ready for bids on new equipment? Ask the manufacturers in the 1960 PRODUCTS FINISHING DIRECTORY!

PROTECT FINE PLATED SURFACES



with **RP** *Neotex*®
PROTECTIVE MESH

Neotex . . . the open pattern Neoprene rubber matting, protects highly polished finishes when used to line any surface where goods are worked on or in transit. In roll form, Neotex can be easily cut to any size or shape . . . it's rugged and long lasting, resistant to abrasives, caustics, heat, acids, oils, oxidation. Open pattern permits buffing compounds to settle. Available in a fine or coarse pattern. Write for complete information.

RP *Neotex*®
RESEARCH PRODUCTS CORPORATION
Dept. 76, Madison 1, Wis.
For more data circle 345 on Postpaid Card

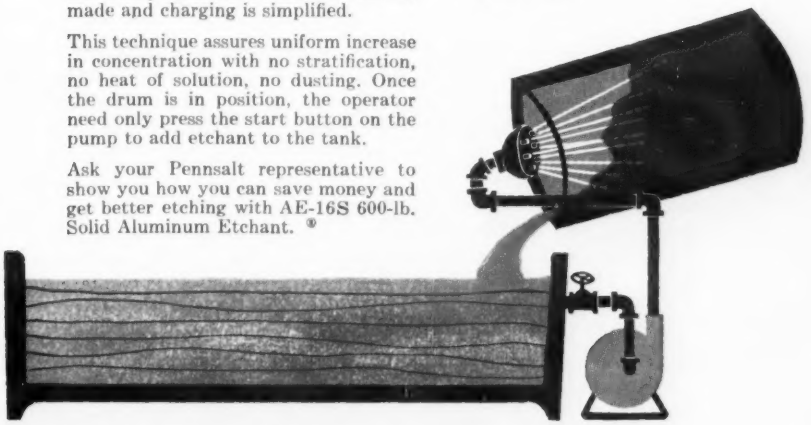
NOW! ALUMINUM ETCHANT AT THE LOWEST COST EVER!

A new 600-lb. drum size and a new make-up technique now make Pennsalt's popular AE-16S Solid Aluminum Etchant a better buy than ever. AE-16S in economy-size drums gives you a clean, uniform etch . . . plus easier handling and better etchant performance . . . all at the lowest materials cost possible for a blended etchant!

Gives push-button control. A 600-lb. drum of Pennsalt AE-16S Solid Aluminum Etchant is positioned over etching tank; etchant solution is pumped from tank to a specially-designed spray nozzle head which is placed in drum opening; spray nozzle sprays solution directly on etchant, dissolving it at a uniform rate; concentrated solution then returns to tank through holes punched in lowest part of drum head. Within minutes, accurately measured additions can be made and charging is simplified.

This technique assures uniform increase in concentration with no stratification, no heat of solution, no dusting. Once the drum is in position, the operator need only press the start button on the pump to add etchant to the tank.

Ask your Pennsalt representative to show you how you can save money and get better etching with AE-16S 600-lb. Solid Aluminum Etchant. ®



Write for complete details on this new plan today. Be sure to check Pennsalt's other aluminum processing chemicals, including emulsion cleaners, inhibited alkaline cleaners, deoxidizing cleaners, flake etchants—sold and serviced by our nationwide organization.

. . . a better start for your finish ®

Pennsalt Chemicals ®
ESTABLISHED 1850

METAL PROCESSING DEPARTMENT
PENNSALT CHEMICALS CORPORATION
East: 3 Penn Center, Philadelphia 2, Pa.
West: 2700 S. Eastern Ave., Los Angeles 22, Calif.

Pennsalt Chemicals of Canada Ltd., Oakville, Ont. • Industrial Química Pennsalt, Mexico City

For more data circle 346 on Postpaid Card

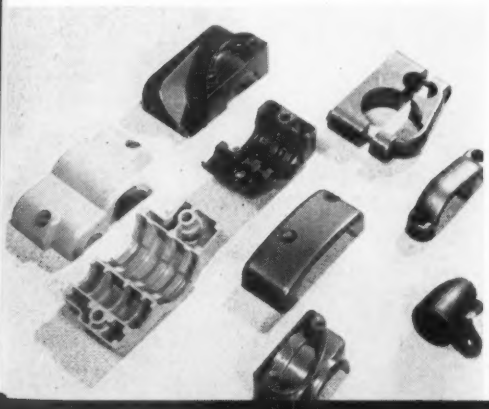
How to Finish Magnesium

By **DR. JOHN A. STEVENS**
Finishing Specialist
Magnesium Technical Service & Development
The Dow Chemical Co.
Midland, Michigan

Many magnesium parts require no finish. If appearance isn't too important, or if the part is subject only to normal weathering or short-time, intermittent wetting, no finish is needed. Magnesium treated by simply chrome pickling (Dow No. 1 treatment) performs well in commercial aircraft wheels, tooling fixtures and jigs, materials-handling equipment and many utilitarian automotive parts.

Where appearance counts, however, a finish is necessary. Such parts are not usually subjected to severely corrosive environments, thus relatively simple finishing systems can be used.

Fig. 1—A group of magnesium steering column bracket parts finished with Dow 1 treatment to improve adhesion, plus enamel.



A ferric nitrate pickle is a good example. A chemical dip treatment, it's also known as "Bright Finish for Magnesium." On magnesium sheet products it provides a silvery, attractive finish for "shelf life." The bright appearance can be prolonged by applying a clear lacquer or wax immediately after treatment.

Magnesium can be painted any color by using any one of a number of finishing systems. A product designed for indoor service is typically painted using the Dow 1 or Dow 19 treatment, followed by one coat of primer and one or more coats of a compatible paint. Products for outdoor use might be finished by using the Dow 1, Dow 7, or Dow 17 treatment, followed by a coat of primer and two or more coats of baked alkyd enamel or air-dried lacquer.

Another decorative finish for magnesium is the clear anodize, a

Pretreatments and paints for decorative and utilitarian applications . . . preventing dissimilar-metal corrosion . . .

variation of the Dow 17 process. This consists of a relatively low-voltage anodize followed by a coat of lacquer or varnish. The lacquer or varnish can be tinted with commercial dyestuffs to obtain a transparent colored finish. This results in a "metallic look." The ferric nitrate bright pickle is also used in this manner.

Bright, tarnish-resistant surfaces also can be obtained by electroplating. The part is first given a zinc immersion coating, followed by a copper strike and electroplating in standard plating baths. Any metal that can be electrodeposited can be applied over magnesium by this method. The suggested minimum total plate thickness ranges from 0.00075 inch for interior service to 0.002 inch for severe exterior service.

More recently, an electroless nickel plating process has been developed for magnesium. Parts to be plated are immersed in a special nickel solution and the nickel usually is plated directly onto bare magnesium. No current or electrodes are required. Electroless nickel provides an attractive finish alone, or it can be used as a base for plating other decorative metals, such as chromium or silver.

Finishes are also required for demanding utilitarian applications—cases where the product must withstand severe exposure or corrosive conditions. Military hardware is a good example.

Engineers who must specify finishes that will protect magnesium parts subject to severe exposure should be familiar with this metal's corrosion characteristics; with the various surface treatments and what they do; and with the paint systems that give magnesium surfaces best resistance to exposure.

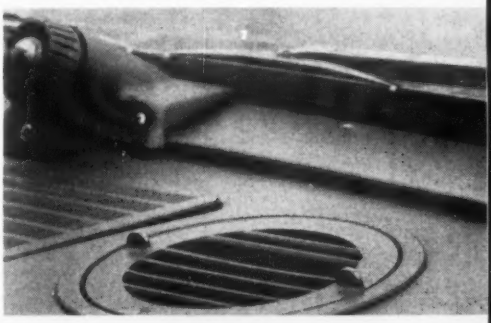
Corrosion

Basically, this is what happens when magnesium corrodes: at the source (anode), magnesium goes into solution, leaving two electrons on the surface of the metal:

$$Mg \rightarrow Mg^{++} + 2e$$

Under the influence of potential, these electrons flow to the cathode through the electron conductor or metal-to-metal contact. At the cathode, the electrons are consumed by

Fig. 2—Magnesium defroster vents to be installed in automobile dash board are also finished with Dow 1 plus baked enamel.



"The alkali formed is the key to finishing magnesium for resistance to corrosion."

reaction with water in the electrolyte, forming alkali:

$$2H_2O + 2e \rightarrow 2\ OH^- + H_2$$

The alkali formed is the key to finishing magnesium for resistance to corrosion. Magnesium, like iron, is inert to alkalies. Thus alkali formation can produce a self-healing effect that helps to prevent corrosion; on the other hand, alkalies destroy paint adhesion, thus they can help to expose the metal and cause corrosion. In finishing magnesium this formation of alkali always must be considered.

Surface Treatments

Most paint pretreatments provide a neutral or slightly acid surface on metals. This is desirable, since alkalies destroy paint adhesion. But surfaces are often scratched in service, and therefore coatings applied by pretreatment also should have good resistance to alkali. If they do not, the alkali formed where the basis metal is exposed will damage the pretreatment coating and destroy the paint-to-metal bond.

Chromate treatments for magnesium meet the requirements for providing an acid surface, but the coatings they produce do not resist alkali. Alkaline anodic treatments, on the other hand, result in a coating with much better resistance to alkalies, wear and abrasion, but they do not provide the acid surface that encourages good paint adhesion.

Only one treatment for magnesium provides an acid surface and resists alkali in itself: the Dow 17 anodize. Characteristics of the coatings resulting from various treatments for magnesium are summarized in Table I.

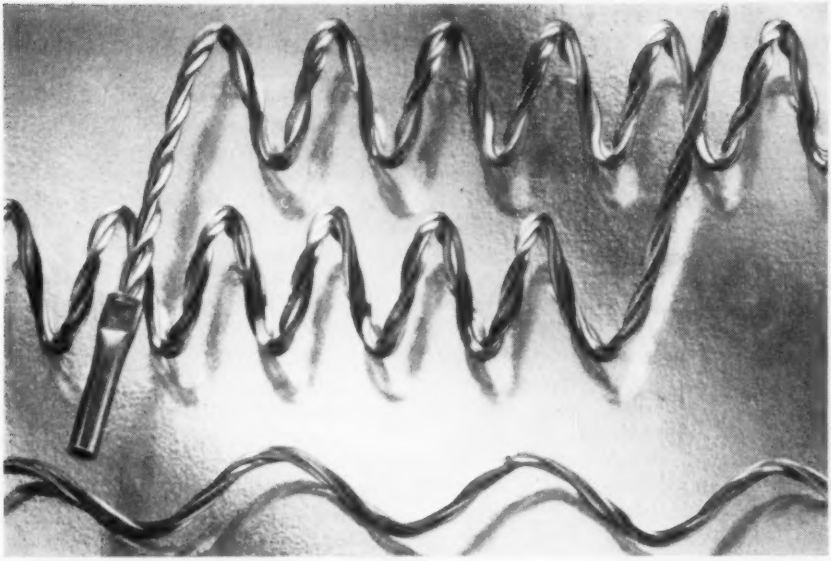
A wash primer can be used to "beef up" the alkali resistance of those treatments which are poor in this respect. The polyvinyl butyral resin used as the vehicle in some wash primers has excellent alkali resistance.

Acid post treatments improve the adherence of paint over pretreated surfaces that are alkaline, such as Dow 12, HAE, and so on. Dichromate or acid fluoride dips neutralize

(continued)

Table I

Treatment	Result
Dow 1, 7, 8, 9, 10, 15, 16, 18 Iridite 15	Acid surface but not alkali resistant
Dow 12, 14 HAE Manodyze	Alkali resistant but not acid surface for paint base
Dow 17	Acid surface and alkali resistant



3 new Sylvania coils give a new shine to vacuum metallizing quality

Sylvania now brings you three big advances in vacuum metallizing coils—open-strand coils, aluminum core coils and copper-tipped coils. Each typifies Sylvania progress in this dynamic field.

Open-strand coils are ideal where large loads of aluminum are required. The uniform stranding holds more molten aluminum, assures more efficient aluminizing.

Aluminum core coils give proper initial wetting. They often completely eliminate the need for dry-run work in the vacuum chamber. Where dry runs are necessary, this greatly simplifies the aluminizing operation.

Copper-tipped coils provide a strong positive electrical contact between bus bar and coils when applications call for open-strand or aluminum core coils. Results—more uniform heat distribution between the coils, thus assuring longer coil life and better work coverage.

Whatever your needs—ribbon filament coils, aluminum oxide coated coils, vertical basket aluminizing coils, as well as stranded wire—Sylvania quality materials add quality to your vacuum metallized coatings. Chemical & Metallurgical Division, Sylvania Electric Products Inc., Towanda, Pennsylvania.

SYLVANIA

Subsidiary of **GENERAL TELEPHONE & ELECTRONICS**

For more data circle 347 on Postpaid Card

the residual alkalinity of these surfaces. Sometimes these post-treatments are considered part of the surface-preparation process.

Paint Systems

In painting any surface, the goal is to produce a film that retains its integrity for the life of the product. Since alkali will be formed anywhere the paint is removed by scratching or abrasion, it is important to select paints which resist alkalies. The vinyls and epoxies are excellent in this respect. They also rank with the best in resistance to abrasion.

Utilization of these principles has given good results in actual practice. The Ryan Firebee drone and the Nike Hercules ground guidance system are magnesium with a Dow 17 surface treatment and a vinyl paint finish. Both have excellent resistance to corrosion, and the Firebee drone withstands repeated immersion in salt water.

Additional corrosion resistance can be attained by using primers that contain inhibitive pigments such as zinc chromate. As with the finish coat, primers should be alkali resistant (vinyls, epoxies and so on). Although zinc chromate pigment is currently more popular, the more insoluble strontium chromate or basic zinc chromates provide sufficient inhibition plus longer life because of their insolubility.

Electroplating effectively prevents corrosion, but because of costs, size and geometry difficulties, use of electroplating is limited to applications where it provides other desirable properties: solderability, wettability, R F grounding, abrasion resistance, improved appearance, and so on.

Dissimilar-Metal Corrosion

The methods outlined above are excellent for preventing corrosion when only magnesium and weathering are involved. But when dissimilar metals enter the picture even the best painting system cannot "paint out" the galvanic corrosion. This is a problem for the design engineer.

(continued)

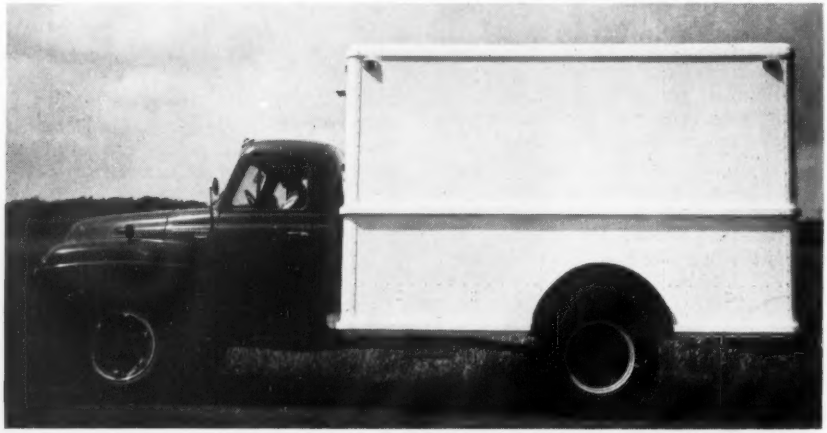
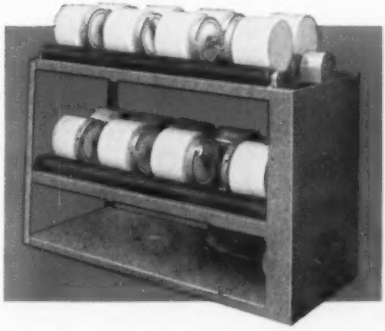


Fig. 3—Magnesium truck body finished with Dow 1, plus AP10, plus automotive enamel.

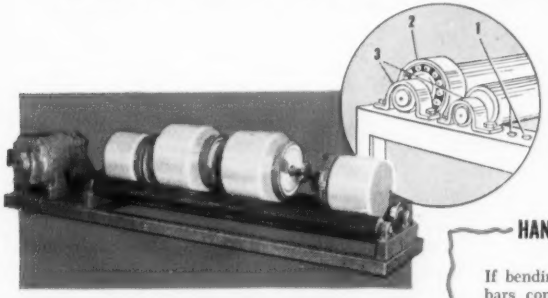
Greater Capacity
Maximum Flexibility
in LIMITED SPACE

"U. S."
LONG-ROLL
JAR MILLS



"U. S." Long-Roll Jar Mills are specially engineered to make most efficient use of valuable floor space. Their greater capacity and flexibility make it possible to expand substantially your milling facilities within virtually the same floor area as occupied by other models.

These units have sturdy welded steel frames built for long, dependable service under rigorous operating conditions. The 3" diameter parallel-ground rollers are made of long-wearing chemical- and solvent-resistant Neoprene rubber. Electrically conductive rubber automatically grounds any static charge generated by jar rotation. Heavy-duty motors and drives assure ample power.



Special features:

1. 3-position adjustment handles jars 2" to 15" in diameter.
2. Free-turning, ball bearing jar stops.
3. Lifetime lubricated and sealed bearings.

FULL RANGE OF SIZES

Available with two or three rolls; single or multiple tiers; roll lengths from 16" to 72". Constant or variable speed drives. Wide choice of optional equipment including cabinets, casters, automatic timers, tachometers, clutches and drives.

HANDY HINTS on Jar Milling

If bending or breaking jar lid locking bars constitute a problem, check for hardening of the gaskets. Should be soft enough to indent with fingernail (about 30 Durometer).

For additional helpful grinding and mixing data plus full details on "U. S." Jar Mills WRITE FOR BULLETIN JM-290.

105-F4

PROCESS EQUIPMENT DIVISION

U. S. STONEWARE
AKRON 9, OHIO

For more data circle 348 on Postpaid Card

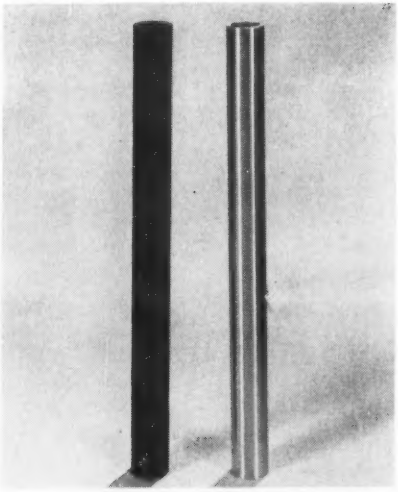


Fig. 4—Two pieces of magnesium tubing finished by the Dow 17 process. Darker tube had standard Dow 17 treatment (90-volt), while lighter tube is finished by 40-volt Dow 17 treatment plus a coat of varnish.

For galvanic corrosion to take place, four things are necessary: 1) the source metal or anode—in this case, magnesium; 2) the dissimilar metal or cathode; 3) an electron conductor—usually a metal-to-metal joint or metal fastener such as a rivet; 4) a liquid path—an electrolyte such as condensate or salt spray.

Knowing that these are necessary for corrosion to begin, the design engineer should try to eliminate one or more of these corrosion-causing conditions. The most obvious method of eliminating dissimilar-metal corrosion is, of course, to eliminate the dissimilar metal and make everything from magnesium. If this is not possible, the next best method is to specify metals and electroplates that are compatible or nearly compatible with magnesium.

Other measures that can be taken to prevent dissimilar-metal corrosion: paint the dissimilar metal or cathode to break up the corrosion couple; use vinyl tapes and compatible metal washers, shims and bushings to lengthen the liquid path.

Protecting the Dissimilar Metal

In dissimilar-metal couples in which magnesium is one of the metals, a pH as high as 13 has been reached; thus the use of alkali-resistant paint systems on the dissimilar metal is imperative. Naturally the more continuous the covering of paint on the cathode, the farther removed the cathode will be from the corrosion cycle. Inhibitive pigments are also helpful in preventing corrosion in such cases.

Compatible Metals and Electroplates

The many aluminum alloys that contain magnesium are completely compatible with magnesium. Certain

(continued)

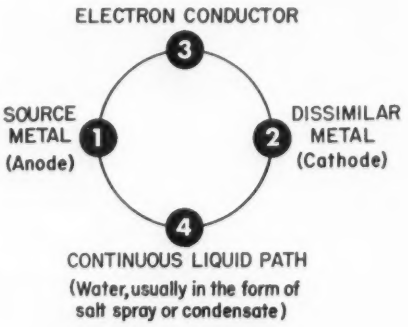
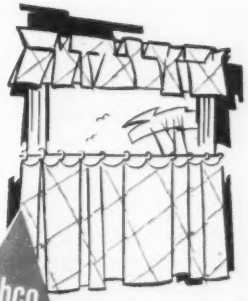


Fig. 5—Drawing shows four requirements for causing dissimilar metal corrosion. (Photos courtesy Dow Chemical Co., Midland, Mich.)

Giving Stanley-Judd's drapery hardware its *"Gleam of Gold"*



These brass-plated pole sockets — like Stanley-Judd's cafe rings, cafe brackets and other drapery hardware — have to sell on sight. They need superior gloss, brightness and color . . . in short, Stanley-Judd's famous "Gleam of Gold". They get it with Ahco Burnishing Compound TV, the choice of Stanley-Judd* finishers after years of testing burnishing compounds on their brass and brass-plated steel products. This new Ahco Compound is also ideal for burnishing copper or steel. It leaves no film on the work and it may be used in all conventional types of burnishing equipment, with all types of media.

Another new Ahco development, for use on ferrous metals, is Burnishing Compound CP-2 which removes light rust or scale as it burnishes. And there are many many more in the complete Hubbard-Hall line of burnishing compounds for *all* applications, *including yours*. It costs you nothing to find out what the right Ahco Compound can do for you. Just drop us a line about your application . . . the burden of proof is on us. At least, let us send you our latest bulletins.

* a division of The Stanley Works

THE Hubbard-Hall CHEMICAL CO.

Waterbury, Conn.

APOTHECARIES HALL DIVISION

For more data circle 349 on Postpaid Card

Coming Up

Watch for these useful articles in coming issues of PRODUCTS FINISHING, the leading publication in the finishing field:

Cutler Hammer . . . A Plant Designed with the Finishing Department in Mind
How painting and plating equipment has been engineered in an award-winning plant . . .

Vacuum Metallizing: New Developments, New Uses
Use of metallized films increases for functional as well as decorative applications . . .

Control of Chromium Plating Baths
Improved chromium plating possible through use of simplified analytical control methods . . .

Vibratory Finishers for Deburring
Shaking a load of parts and media does jobs that other methods can't do . . .

Add Color to Your Zinc Plates
Dyed chromate coatings provide an economical metallic color . . .

New Gas-Deposition Process for Making Dies
Pure nickel forming dies and foundry patterns without any machining or hand work . . .

Pores in Plates: Causes and Detection
Methods of checking for pores . . . influence of gas evolution on pore formation . . .

electroplated coatings for steel fasteners, bolts and inserts are nearly compatible.

The magnesium-containing alloys exhibit polarization characteristics when coupled to magnesium. These reduce the difference in potential to a negligible value; thus corrosion does not occur.

In addition to 5056 aluminum alloy rivets, the principal aluminum alloys recommended for use with magnesium are those which contain magnesium and are low in copper, nickel and iron (titanium and chromium have little effect on compatibility).

As for electroplates, tin is more compatible than cadmium, but less compatible than 5056 aluminum. Additional protection with alkali-resistant paint lessens the danger of corrosion when using either tin or cadmium electroplates.

Lengthening the Liquid Path

Experience shows that the design engineer can destroy the continuous electrolyte path by lengthening it at least one eighth inch and preferably one fourth inch. In practice this can be done by using vinyl or mylar tapes, or by using shims, bushings and washers made from a compatible aluminum alloy.

All sump areas where water stands should be eliminated by drilling holes so that the water drains. This is common practice in the aircraft industry.

This article adapted for publication in PRODUCTS FINISHING from Magnesium Topics, *a publication of the Dow Chemical Co., Midland, Michigan.*

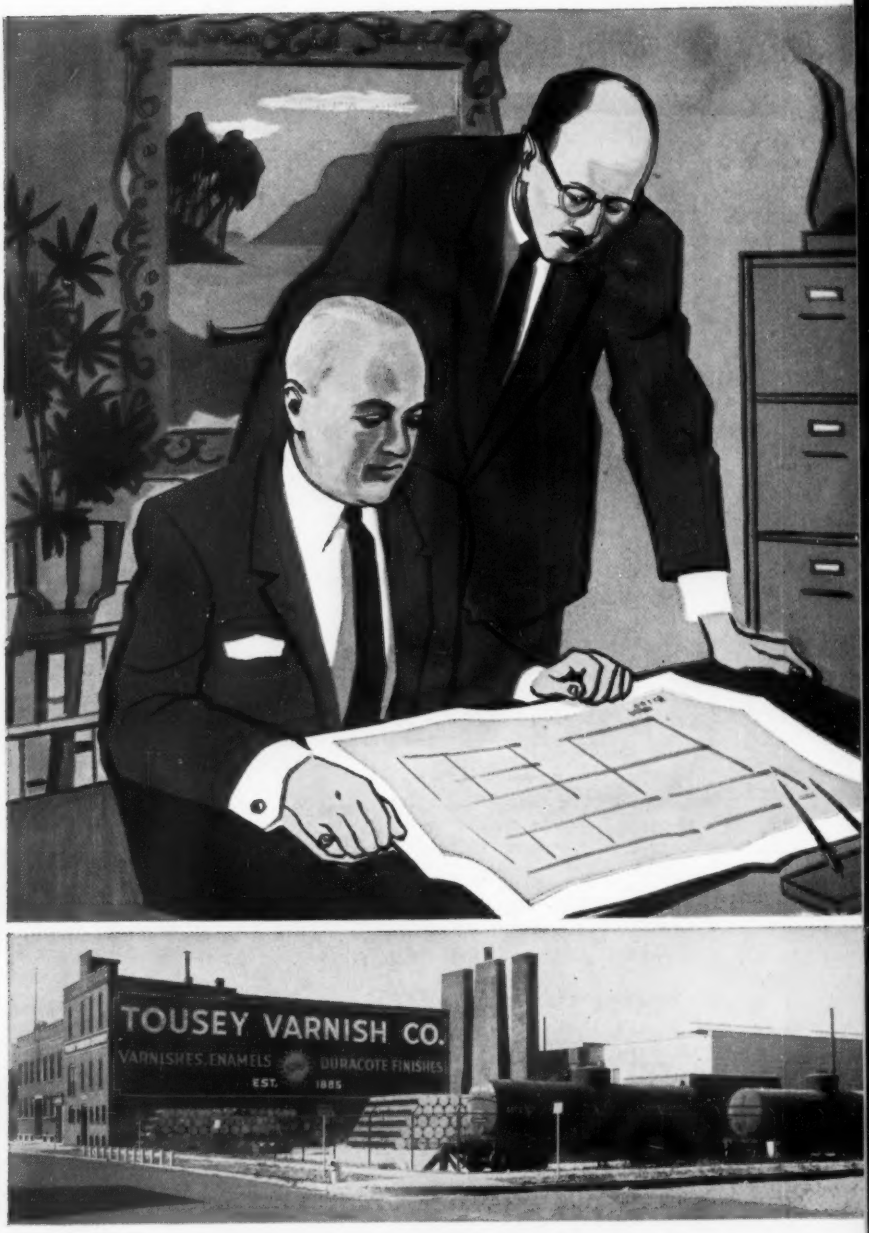
EXPERIENCE ACQUIRED OVER THIS PERIOD IS YOUR ASSURANCE OF QUALITY, DEPENDABILITY AND SERVICE

- Stainless Steel Composition
- White Finish
- Tripoli
- Chrome Coloring Composition
- Greaseless Composition
- Emery Cake
- Grease Stick
- Brass Coloring
- Emery Paste
- Burring Compound
- Spray Pastes (Liquid) Stainles Steel Tripoli

Representation in Major Cities *Write Dep't. C for Samples*

The BUCKINGHAM PRODUCTS CO.
POLISHING and BUFFING COMPOSITIONS
14100 FULLERTON AVE. DETROIT 27, MICH.

For more data circle 350 on Postpaid Card

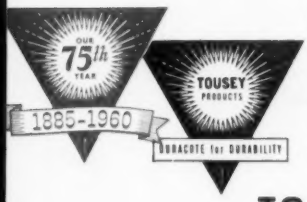

TOUSEY VARNISH CO.
VARNISHES ENAMELS
DURACOTE FINISHES
EST. 1885

Our 75th year

CHAPTER THREE

Today, Tousey stands as a company 75 years young looking to future with confidence. Under the guidance of Carl R. Heagstedt, who became President in 1954, Tousey in a stepped-up expansion program built a new manufacturing plant in East Moline, Illinois and acquired a subsidiary in Cleveland, Ohio during the past two years. These new outlets afford excellent service to various large manufacturing centers in their areas.

Thus today we find a full-grown company established on a basis of good customer relationship and a devotion to the quality of its products, a program that will undoubtedly prove a successful formula for continued expansion.



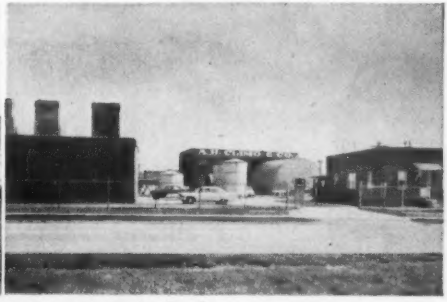
Tousey Varnish Company manufactures a full line of finishes for application by Dipping, Flo-coating, Hot Dipping, Automatic Spray, Electrostatic Spray, Airless and Hot Spray. Tousey is a major supplier of finishes to manufacturers of Farm Machinery, Road and Construction Machinery, Automobiles and Trucks, and to other representative manufacturers of products made of metal.

TOUSEY VARNISH COMPANY

Chicago Division: 520 WEST TWENTY-FIFTH STREET • CHICAGO 16, ILLINOIS

Quad Cities Division: 2500 EIGHTH AVENUE • EAST MOLINE, ILLINOIS

A. H. Climo Division: 16908 WATERLOO ROAD • CLEVELAND, OHIO



For more data circle 351 on Postpaid Card

Tired of reading claims for airless spray?

. . . of advertisements that say:

- **NO OVERSPRAY**
- **40% FASTER**
- **BIG MATERIAL SAVINGS**

and then had demonstrations-

one after another, only to find that airless didn't provide the quality or control your finishing department requires.

Then take just a minute to read these straightforward facts.

- The claims you read for airless spraying are usually true.
- It's the limitations—**what it won't do**—that aren't in the ads and cause 9 out of 10 prospective airless users to be disappointed because of poor atomization and insufficient gun control.
- **Spee-Flo Airless had the same shortcomings until a new invention, THE H-GUN, was introduced early this year.**

What is this H-GUN and what will it do?

- THE H-GUN looks like any other airless gun but it has a pre-mix chamber that provides total atomization **even without heat.**
- It produces a perfect, feathered spray pattern with proper overlap.
- There are no flooding or pig-tail characteristics.
- It will spray large areas, or small and intricate shapes.
- It is standard on all HydraAirless models.

Where can I see the H-GUN?

- It's easy—in your own plant or at your job site, by writing the Spee-Flo Company or phoning your nearest Spee-Flo Distributor.
- We will demonstrate so that you can evaluate the quality control, plus time and material savings.

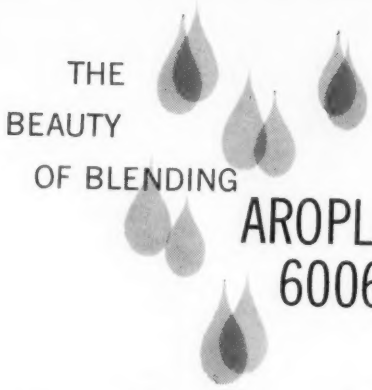
THE H-GUN

Write for catalog on the Spee-Flo HydraAirless systems with THE H-GUN.
Priced from $715 to $1500.

The **SPEE-FLO** *Company*

6614 Harrisburg Blvd.
Houston 11, Texas

For more data circle 352 on Postpaid Card



Reduce drying time to minutes... cut application costs.. enhance performance by modifying conventional alkyds with ADM's remarkably compatible fast air-dry alkyd

The remarkable compatibility of AROPLAZ 6006 is cutting costs and solving problems in a host of fast air-dry and quick bake industrial applications. Auto refinishing king, Earl Scheib, whose nation-wide system of shops repaint half a million cars a year, cites a prime example: "Modifying a conventional alkyd with AROPLAZ 6006 enables us to reduce drying time 15 minutes on the average. Rejects and returns caused by water spotting, dust pick up, or paint failure have been virtually eliminated."

Chances are you can benefit by blending AROPLAZ 6006 too. This pure alkyd air dries with the speed of lacquer . . . yet is as durable as quality alkyd-melamine baking enamels. Its outstanding compatibility with long or short oil alkyds and aliphatic solvents lets you achieve special performance features . . . at great economy. Contact your ADM representative today for more information on this important ADM development . . . AROPLAZ 6006.

Photo: Courtesy Earl Scheib, Inc.
Los Angeles, California

GOING PLACES . . . in a sparkling car repainted just minutes before with super-fast, air-drying alkyd, AROPLAZ 6006.

ARCHER-DANIELS-MIDLAND
749 Investors Building • Minneapolis 2, Minn.
For more data circle 353 on Postpaid Card

CHEMICAL GROUP
RESINS • PLASTICS
INDUSTRIAL CHEMICALS

SPOTLIGHTING Finishing Progress

Dr. Nelson F. Murphy, Research Professor of Chemical Engineering, Virginia Polytechnic Institute

Porcelain Enamel Adherence Studies

The relation of roughness to the adherence of porcelain enamel on steel has been investigated in research work sponsored by the National Advisory Committee for Aeronautics. J. C. Richmond, D. G. Moore, H. B. Kirkpatrick, and W. N. Harrison[1] have studied the relation between the roughness of the interface and the adherence of porcelain enamel to steel.

A basic frit composition was prepared and to this frit was added varying amounts of cobalt oxide and varying types of metal oxides. The effects on adherence caused by the surface treatment of the metal before application of the enamel, and by different firing times were studied. The enamel contained 0.8 per cent cobalt oxide.

Additions were chosen for several reasons. Cobalt, nickel, and manganese oxide are common promoters of adherence in commercial ground coats. Manganese oxide when used alone or in combination with the other two oxides is of questionable value. Antimony and molybdenum oxides have been reported as promoting adherence to some extent. Oxides of chromium, cadmium, arsenic and copper were chosen because of their position in the electromotive series of the elements with relation to iron and cobalt.

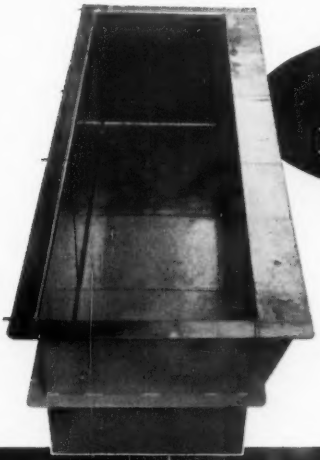
The 20-gauge enameling iron blanks were prepared (a) by sand blasting, (b) by pickling using a standard procedure not including the nickel dip or (c) by grinding and polishing. The enamels were applied by dipping and each was adjusted to give a coating five mils thick. All specimens were fired at 1575 deg. F. for four minutes.

The adherence of this enamel to the specimen was evaluated by the standard Porcelain Enamel Institute test[2]. This test evaluates the degree of adherence of a porcelain enamel to metal in terms of the amount exposed by standard deformation treatment. An adherence index of less than 50 by this test is considered poor or commercially unacceptable.

The roughness of the specimens was evaluated by examining a section microscopically and counting the number of undercuts per centimeter. Many fields had to be counted

(continued)

A TANK LINING FOR EVERY SOLUTION



Amer-Plate®
PVC TANK LINING

Whether your plating and processing tanks are steel, concrete or wood, Amer-Plate can protect them indefinitely against corrosive solutions. Amer-Plate is a dense thermoplastic sheet made from high polymer vinyl chloride resins molded under high pressure and temperature.

- **It is unaffected by strong acids and oxidizing materials.**
- **It is non-toxic in food and beverage service.**
- **It is impervious to diesel oil, sour crude, aliphatic petroleum hydrocarbons.**
- **It will withstand hard chrome liquor to 160°F.**
- **It is resistant to highly corrosive salts.**
- **It resists alkalis including 50% caustic soda.**
- **It is insoluble in aliphatic alcohols, glycol and glycerine.**

Amer-Plate adheres not only to steel but also to concrete or wood without costly metal interlining. It is ideal as a membrane under acidproof brick construction. Amer-Plate is also supplied with a T-ribbed back for casting into place in new concrete tanks. Applicators are strategically located throughout the U.S. and Canada.

Amercoat® CORPORATION 117

Dept. EH, 4809 Firestone Boulevard, South Gate, California

• Evanston, Illinois • Kenilworth, New Jersey • Jacksonville, Florida • Houston, Texas • Buffalo, N. Y. •

For more data circle 354 on Postpaid Card

"Most of the roughness that was associated with good adherence developed during the firing process."

to obtain a reliable mean value for each section. If adherence depends on keying-in action of the rough interface, the best correlation between roughness and adherence of the interface should be obtained in terms of the number of anchor points per centimeter. If, on the other hand, adherence is caused by chemical bonding, better correlation should be obtained between adherence and roughness when roughness is evaluated in terms of interface.

The interface can be evaluated by measuring the length of the line on the microscopic field which represents the length of the interface

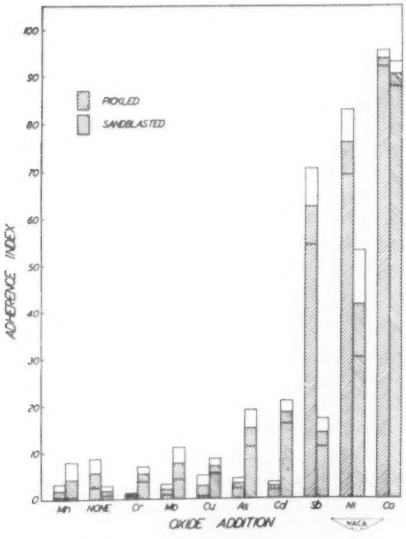


Fig. 1—Adherence as a function of metallic oxide smelted into a porcelain-enamel ground coat, showing effect of metal preparation. Horizontal lines above and below cross-hatched portion represent 95-percent confidence limits for average in each case.

between the enamel and the metal. When adherence is studied as a function of cobalt oxide content of the enamel frit, the type of metal preparation does not affect the adherence of the enamel. Adherence of enamel to pickled or sand blasted metal is better than to polished metal.

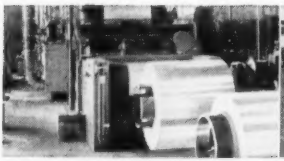
When adherence is compared with firing time all specimens appear to have the same adherence on pickled and sand blasted samples. Best adherence is obtained at a firing time of between 4 and 6 minutes.

The bar chart (Fig. 1) is an illustration of the effects of oxide additions to pickled or sand blasted steel samples in which the metallic oxide additions to the frit are varied.

A positive correlation between the adherence of a porcelain enamel ground coat and the roughness of the interface has been reported. The adherence correlated better with anchor points per centimeter than with the increase in interfacial area. In general better adherence was associated with enamels applied to pickled iron than to sand blasted iron for the same degree of roughness of interface. Most of the roughness that was associated with good adherence developed during the firing process. Apparently other factors not studied in this report also influence adherence between porcelain enamel ground coat and steel.

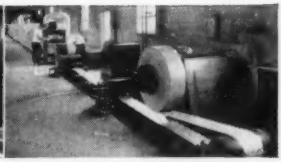
To explain the effects of roughness and of cobalt oxide on adherence the so-called "Galvanic Corrosion Hypothesis" has been offered. This was first presented by Adolf Dietzel in 1935. D. G. Moore, K. W. Pitts, J.

(continued)



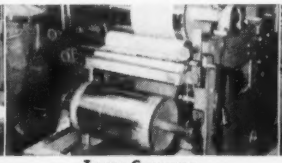
Litho-Strip Corp.
(Job Coating)

Stanley Judd Division
(Drapery Hardware)



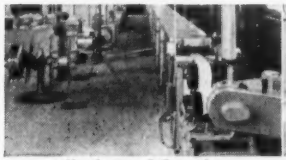
Keystone Alloys Co.
(Siding)

Reynolds Aluminum Supply Co.
(Job Coating)



Trane Company
(Baseboard Heating)

Comaco, Inc.
(Job Coating)



Koolvent of Canada
(Awnings)

Crown Mfg. Co.
(Siding)

Stanley Steel Strapping Division
(Seal Fasteners)

FOR SUCCESSFUL STRIP COATING . . . it's *GASWAY*

OVER 70 LINES NOW IN SERVICE THROUGHOUT THE WORLD

This is the pattern of success. *Over 70 strip lines now in service.* These lines are producing properly finished strip efficiently and economically. Gasway is the pioneer in designing, building and installing complete metal strip finishing lines. For nearly 15 years, Gasway has been building and installing complete strip lines that are still producing satisfactorily and economically.

When you select a Gasway installation, you aren't dealing in futures . . . you're *sure* of the proper design and construction to fit your needs. You save trouble and get into production faster with Gasway. All the trial and error is eliminated. Gasway's long experience has solved the difficult problems involved in strip lines, up to 40" or wider. *This means positive protection of your strip coating investment.*

With Gasway strip lines, you can be sure of success!

- SMOOTH METERED COATING
- UNBELIEVABLE PAINT SAVINGS
- SPEEDS OVER 100 FEET PER MINUTE
- BOTH SIDES AND DIFFERENT COLORS, IF DESIRED
- APPLIES MANY DIFFERENT FINISHES

SEND FOR COMPLETE FACT FILE

GASWAY CORPORATION

6463 N. Ravenswood Ave.
Chicago 26, Illinois

LOOK TO GASWAY FOR EXPERIENCE AND KNOW-HOW IN STRIP COATING

For more data circle 355 on Postpaid Card

"Apparently oxygen is an important depolarizer in this corrosion reaction."

C. Richmond, and W. N. Harrison[3] have presented an elaboration of the Dietzel theory in a report for the N.A.C.A.

Figure 2(a) shows the change in interface with firing time for a cobalt-free ground coat while Fig. 2(b) illustrates the change in interface when a small amount of cobalt oxide is present. In Fig. 2(a) the first picture represents the surface of the iron a minute or two after the oxide layer is dissolved. The second diagram in Fig. 2(a) represents the condition of the interface a minute or two later. The third part of Fig. 2(a) represents the interface after a normal 4- to 6-minute firing time. The corrosion has proceeded evenly, and the enamel will not adhere but will flake from the metal on cooling.

The corrosion of iron when cobalt ions are present is of a different type as shown in Fig. 2(b). As soon as the oxide layer is dissolved the cobalt apparently plates out on the cathodic area of the iron surface as shown in the second part of Fig. 2(b). This cobalt protects the underlying iron from attack because of potential differences on the metal surface. Apparently oxygen is an important depolarizer in this corrosion reaction. This corrosion promotes the formation of keying-in points on the metal surface, but on long continued firing, these key points may fail because a fragment of the steel becomes detached. This behavior of the steel is illustrated by photomicrographs of the interface (Fig. 3).

The authors have carried out experiments with electroplated specimens to establish the theory just presented and have studied the depth of corrosion of iron during firing by

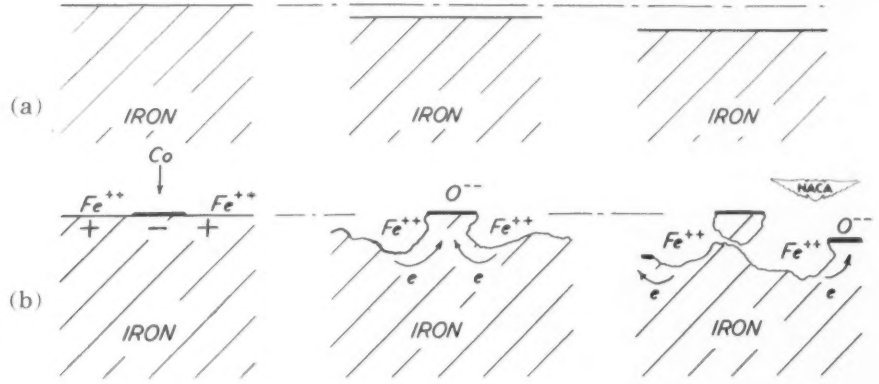
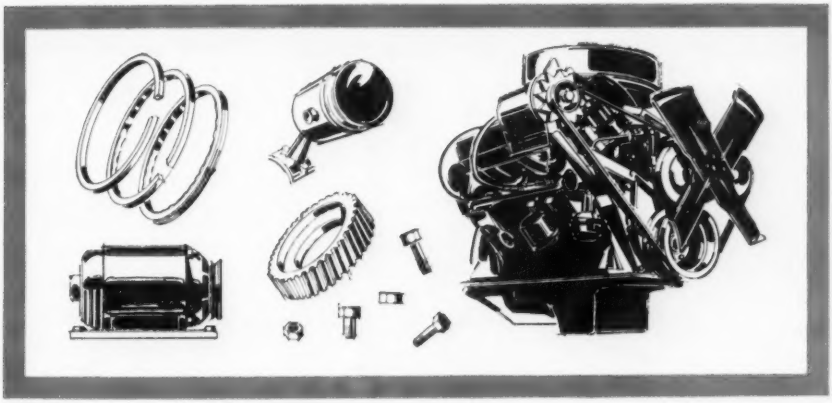


Fig. 2(a), 2(b)—Schematic drawing illustrating the differences in corrosive attack on iron by cobalt-free (upper) and cobalt-bearing (lower) ground coats. Firing time increases in both sets of diagrams from left to right, the first diagram in each case indicating interface condition shortly after enamel fuses. Upper drawing is Fig. 2(a), lower Fig. 2(b).



Sprayed hot or cold, EXPRAY-AP rustproofs all machined metals

Here's a product for spray cleaning and rustproofing that's excellent for use on steel, cast iron, and other metals—in *both hot and cold washers!* Wyandotte's versatile EXPRAY-AP®!

Specially designed for use on engine parts, steering gears, refrigerator compressors, transmission parts – any highly machined surface – EXPRAY-AP removes fabricating oils, chips, and dust deposited during machining and grinding. Gives dependable rust protection between operations—even in single-stage washers! Ends your need for additional rust preventatives. Will neither etch nor corrode zinc die castings; even protects them against staining in storage. Retaining high detergent action at any temperature, EXPRAY-AP also works well with brass, copper, and bronze.

And EXPRAY-AP

- Conditions water to prevent scale formation in washers. Lowers maintenance costs.
- Rinses freely; drains and dries quickly without streaks, spots, or residues.
- Gives off no obnoxious fumes!

For profitable information on how EXPRAY-AP can help you, call in your Wyandotte representative – today. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California; and Atlanta, Georgia. Offices in principal cities.*

Wyandotte CHEMICALS

J. B. FORD DIVISION

The Best in Chemical Products for Metal Finishing

For more data circle 356 on Postpaid Card

microscopic study of cross-sections of the enamel-to-steel interface.

Some anomales exist which need explanation before the theory can be fully accepted. 1. Why does copper oxide fail to perform as an adherence oxide since it would plate out on the iron and act as a cathode to the adjacent exposed iron? No satisfactory explanation of its behavior has yet been devised. 2. Why does the roughening produced by sand blasting fail to produce the same powerful adherence as roughening that is produced by enamel during firing? 3. Why does antimony oxide in the ground coat produce surface roughening and fair adherence on an iron surface that has been pickled, and yet have no appreciable effect on a polished or sand blasted surface?

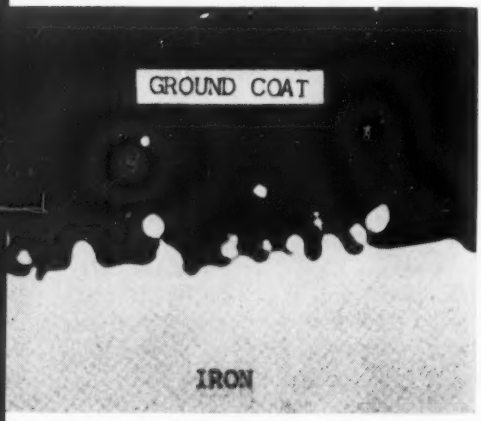


Fig. 3—Interface between ingot iron and a normally fired ground-coat enamel containing 0.8 percent by weight Co_3O_4. Iron surface was polished prior to coating. Unetched; magnification shown here is 2000x.

REFERENCES

1. Richmond, J. C., D. G. Moore, H. B. Kirkpatrick, W. N. Harrison. "Relation Between Roughness of Interface and Adherence of Porcelain Enamel to Steel." N.A.C.A. Technical Note 2934, April, 1953.
2. Porcelain Enamel Institute. "Test for Adherence of Porcelain Enamel to Sheet Steel." Bulletin T-17, Washington, D. C. 1951.
3. Moore, D. G., V. W. Pitts, J. C. Richmond, and W. N. Harrison. "The Galvanic Corrosion Theory for Adherence of Porcelain-Enamel Ground Coats to Steel." N.A.C.A. Technical Note 2935. June, 1953.

★ ★ ★

Automotive Nickel Plating

About 75 per cent of all the nickel used for plating purposes is used by the automotive industry.

A Survey of Paint Application Methods

A series of articles on painting methods have been reprinted as a 64-page booklet.

Chapters in the report cover: 1) Use of the Spray Gun. 2) Conveyorized Spray Finishing; Automatic Spraying; Electrostatic Spray Painting. 3) Hot Spray; Airless Spraying; Steam Spray Painting; Spraying Catalyst Coatings. 4) Dipping Methods; Flow Coating. 5) Roller Coating; Tumble and Centrifugal Painting; Silk Screening; Aerosol Painting.

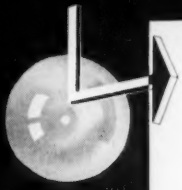
Reprints of *A Survey of Paint Application Methods* are available at 75 cents a copy. Please send check with order to PRODUCTS FINISHING, 431 Main St., Cincinnati 2, Ohio.

MICROBEADS GLAS-SHOT FOR BLASTING

CAN IMPART THIS MICROFINISH TO THIS SURFACE IN SECONDS

Microbeads Glas-shot are microscopic glass beads for use with all types of wet or dry blast equipment. You can use Microbeads Glas-shot for cleaning, polishing, peening or finishing of all materials normally processed with blast equipment. If you've never used Microbeads Glas-shot you're in for the surprise of your life.

**FOR COMPLETE INFORMATION AND SAMPLES . . .
JUST MAIL THE COUPON BELOW**



Microscopic Glass Beads for Industrial and Reflective Purposes

MICROBEADS INC.
P.O. BOX 241 • JACKSON, MISSISSIPPI

☐ **Send information and samples**

☐ **Have representative call**

Name _____

Title _____

Firm _____

Street _____

City _____ Zone State _____

BL-359

For more data circle 357 on Postpaid Card

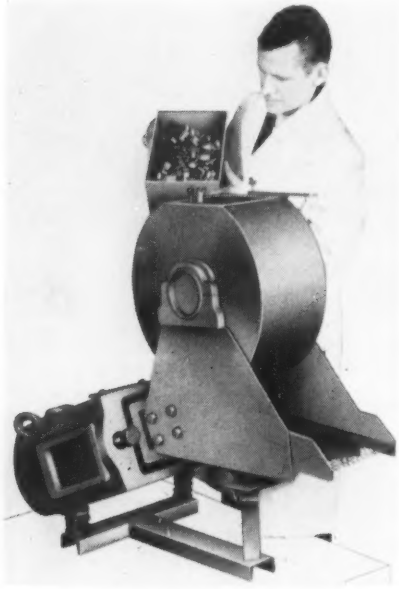
new Equipment, Materials, Processes

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

Vibratory Barrel Tumbling Machine Has Variable Amplitude

Syntron Company has introduced a vibratory barrel tumbling machine that has electromagnetic vibratory drives. It is designed for deburring, cleaning, descaling and finishing.

Powerful, controlled directional vibration keeps both parts and media agitated and constantly moving. This constant vibration assures more thorough finishing of hard-to-get-at places and shielded areas. The amplitude of vibration can be instantly varied while the same frequency of 3600 vibrations per minute is maintained.



Syntron Vibratory Barrel Tumbling Machine

These units are available with 0.4, 1 and 6 cubic feet capacities; larger models will be available in the near future. A screen trough separates the parts and media. The same directional vibration that finishes the parts moves the parts and media across the screen for rapid separation.

Manufacturer: Syntron Company, 452 Lexington Ave., Homer City, Pa.

For more data circle **126** on Postpaid Card

★ ★ ★

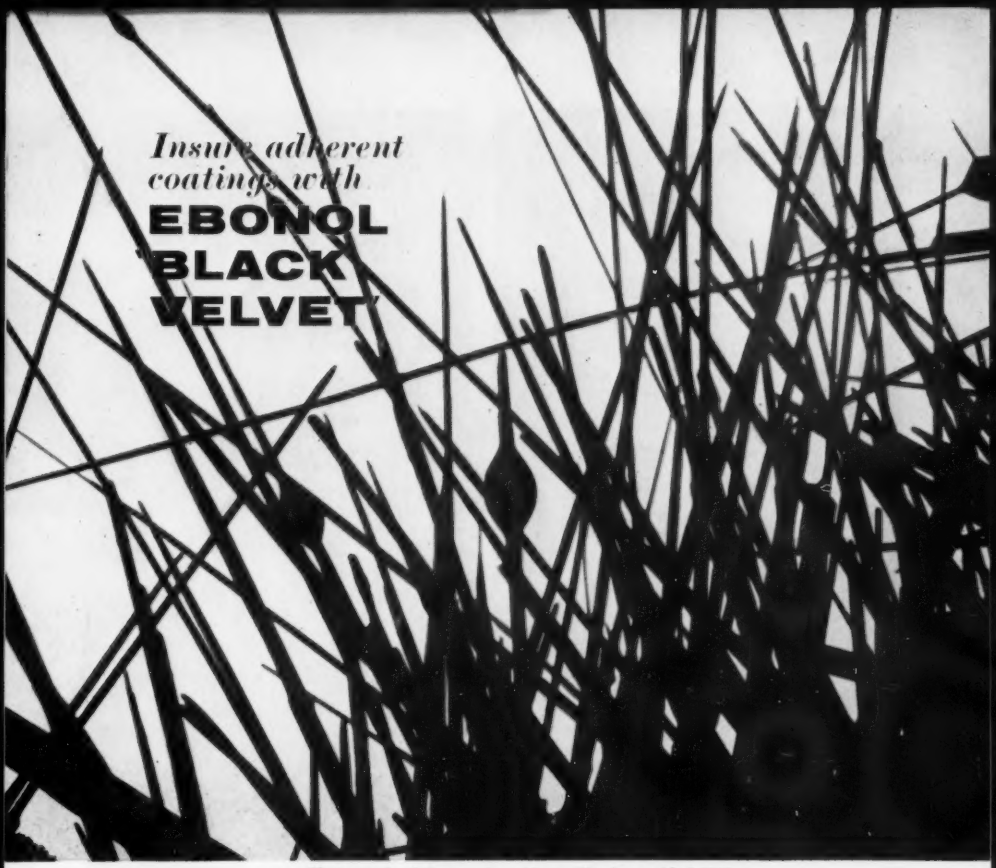
Wide-Face Buffing Wheel Head for Coil Stock

A wide-face wheel head that's designed for continuous buffing of aluminum, brass, or steel coil stock has recently been added to Murray-Way Corporation's line of polishing and buffing machinery.

These heads may be placed in tandem and angularly positioned for cross-cutting action. The complete head oscillates, allowing more uniform buffing, and an automatic wheel positioner compensates for wear.

A billy roll supports the strip at the buffing point. When stitched or welded coil ends pass under the buffing head, the billy roll automatically "drops

(continued)



Photograph of the cupric oxide needles (magnified 6500x) produced by immersion of copper part in hot solution of Ebonol "C" Special.

Treating copper and brass surfaces with Ebonol "C" Special will insure high adhesion for almost every type of coating. This patented product of Enthonics Research forms thousands of jet black cupric oxide needles per square inch. Once these needles become imbedded in the coat or adhesive, and the coating sets, adhesion is tight and long-lasting. Lacquers, enamels and plastics are all bonded firmly to copper or brass surfaces when these surfaces have been pre-treated with Ebonol "C" Special.

Use Ebonol "C" coatings to achieve extremely low reflectivity on military equipment and optical parts. The coatings absorb oil, giving better lubrication of copper surfaces. They resist corrosion and produce an attractive finish with little dimensional change. Heat radiating and absorbing abilities of the surface are increased. Printed circuit manufacturers oxidize copper foil in Ebonol "C" Special before coating with adhesive and bonding to the plastic laminate. Result: double the bond strength.

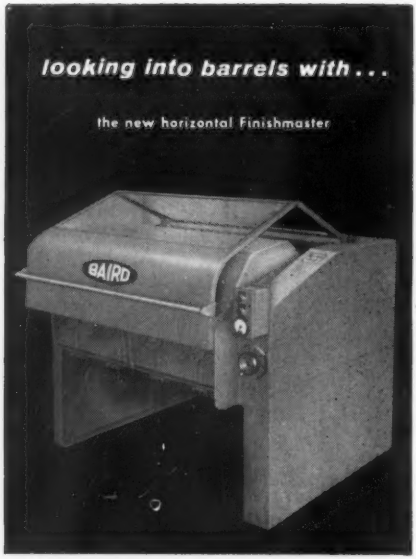
Write for the complete story on Ebonol "C." We promise it will be immediately rewarding.
Enthone, Incorporated, 442 Elm Street, New Haven, Connecticut.

ASARCO

ENTHONE

A subsidiary of American Smelting and Refining Company

For more data circle 358 on Postpaid Card



. . . BAIRD

And there's a lot to look at! Who else but Baird can supply almost every conceivable barrel finishing equipment need?

COMPLETE BARREL FINISHING UNITS

The famous Poliaction series, Hydratilt and Electratilt . . . ball burnishers . . . obliques . . . Multipacts for super high production output . . . steam and electrically heated machines . . . and more!

REPLACEMENT BARRELS

Polygonals in wood . . . cast barrels of iron, brass, monel or Everdur . . . sheet metal barrels, all-round or polygonals with angle or round-corner bottoms . . . bottle shapes.

PROBLEM-SOLVING TEST SERVICE

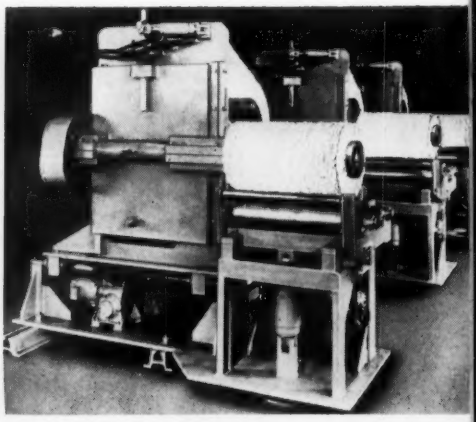
Send samples of your parts along with specifications and a small quantity of finished, acceptable parts. We will give you data on recommended barrels, media, speeds, etc. No charge, of course.

Write today for Catalog No. 50 . . . 20 fully illustrated pages in color on Baird Barrel Finishing and Tumbling equipment.

BAIRD

THE BAIRD MACHINE CO.
Barrel Finishing Equipment Div.
600 Stratford Ave., Stratford, Conn.

For more data circle 359 on Postpaid Card



Murray-Way's Wide-Face Buffing Machine

out," allowing the strip to run free.

Buff sections are mounted on a separate bearing-supported sleeve.

Manufacturer: Murray-Way Corporation, P. O. Box 180, Birmingham, Michigan.

For more data circle **127** on Postpaid Card

★ ★ ★

Spray Gun with "Canned" Power Supply Is Self-Contained Unit

By teaming up its small "Wren" air brush with a "canned" power supply, Binks Manufacturing Company has created a versatile painting tool. Called Wren-Pak, the unit needs no compressor, no compressed air source.

The Wren-Pak consists of a pressurized can that will operate the Wren air brush for 30 minutes of intermittent spraying. A single hose connects the can to the air brush. The Wren air brush carries its own material or paint supply in an attached bottle.

Spray pattern is adjustable from round to fan, with all intermediate patterns. Directional accuracy is good enough to eliminate the need for masking in most painting operations.

(continued)

Perma-Line

TANK LINING REPAIR KIT

Perma-Line
PRODUCTS
YOUR COMPLETE SET OF PROFESSIONAL TOOLS FOR REPAIRING PVC TANK LININGS
PERMA-LINE RUBBER PRODUCTS CORPORATION

prepares you to meet Emergency Breakdowns

Everything you need for low-cost tank repairs is in this kit—including complete instructions, designed by experts for the inexperienced. A single repair job can pay for the entire kit. Now you can easily repair the following tank linings professionally:

KOROSEAL — TYGON
AMERPLATE — FLIGID
RIGIDON — VYFLEX
SPRAYED PLASTISOL

Also used for plating rack coatings, PVC duct and polyethylene linings.

AS SIMPLE AS

1 TESTING — 2 PATCHING — 3 SEAMING

Perma-Line Rubber Products Corp.
1753 N. Winnebago Avenue
Chicago 47, Illinois

Please send me a complete description of the tools furnished in the Perma-Line tank repair kit, as well as price information.

Name_____

Firm Name_____

Street Address_____

City_____ Zone____ State____

Perma-Line PRODUCTS

PERMA-LINE RUBBER PRODUCTS CORPORATION
1753 N. Winnebago Ave., Chicago 47, Illinois • Humboldt 9-2020

For more data circle 360 on Postpaid Card

Binks Wren-Pak has a pressurized can which supplies the compressed air for spraying.

Any air brush user will find Wren-Pak a convenient answer to many painting and finishing problems. Automotive touch-up, photograph re-touching, artists' renderings, and ceramic decorations are some of the uses to which Wren-Pak can be put.

Manufacturer: Binks Manufacturing Co., 3118-40 Carroll Ave., Chicago 12.
For more data circle **128** on Postpaid Card

★ ★ ★

Tumble Coating Process for Coating with Zinc: No Hydrogen Embrittlement

George K. Garrett Company now applies a zinc coating on small steel parts such as fasteners by tumbling these parts with zinc powder, a "promoting" compound, water and glass beads of varying sizes. Advantage of the process is that the zinc coating is produced without hydrogen embrittlement. No subsequent heat treatment needed.

Called "Garretizing," this process is said to result in an even coating,

(continued)

ELECTRO-POLISHING

Fast, low cost finish for aluminum, copper and alloys, steel and stainless steel. Ideal for decorative finishes, burr removal, electroplate adhesion and size control. Standard and custom concentrates nationally available in any quantity.

for Beauty, Economy, Speed

Let us convince you—send samples for processing.

Write for full data

ELECTRO-GLO COMPANY

625 S. Kolmar Ave., Chicago 24, Ill.

Electro-Glo

For more data circle 361 on Postpaid Card

Cycleflex

FULLY AUTOMATIC PLATER & ANODIZER

Conveyor Breakdowns Eliminated with new electro-mechanical control and safety device. Racks can't be pushed into sides of tank; load can't drop if power fails during work transfers.

Positive 6-Point Connections. Self-cleaning heavy duty contacts need little or no attention.

Rack Carriers Quickly Removed. A big time saver when servicing, or manually plating large pieces.

Fast Cycle Changes by shifting tank partitions and moving pick-up heads.

No Extra Headroom Required. All elevating mechanism operates below top of rack carrier.

Automatic Loading And Unloading of racks.

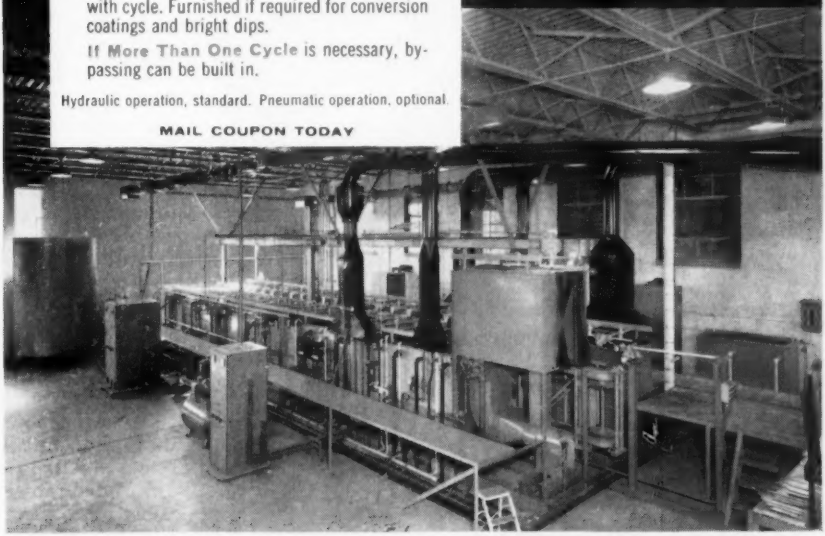
Delayed Set-Down to operate automatically with cycle. Furnished if required for conversion coatings and bright dips.

If More Than One Cycle is necessary, bypassing can be built in.

Hydraulic operation, standard. Pneumatic operation, optional.

MAIL COUPON TODAY

ONE MAN handles complete operation of this MOST VERSATILE OF ALL AUTOMATICS



LASALCO, INC.

HOME OFFICE:
2820 LaSalle St. • St. Louis 4, Mo. • PRospect 1-2990
IN TEXAS:
2805 Allen St. • Dallas, Texas • Riverside 7-8093

ATTACH TO COMPANY LETTERHEAD

Let us have information on the fully automatic Cycleflex.

Name.....

Title.....

For more data circle 362 on Postpaid Card

regardless of shape or complexity. The parts meet all applicable corrosion-resistance requirements.

Originally developed by Minnesota Mining and Manufacturing Co., this process was further developed by the Garrett Company. The zinc is attached to the steel surfaces by the impact of the glass beads as they strike the parts during tumbling.

Further Information: George K. Garrett Co., Inc., Torresdale Ave. at Tolbut St., Philadelphia 36, Pa.

For more data circle **129** on Postpaid Card

★ ★ ★

Process for Preparing Copper for Electroplating

A process for preparing copper for electroplating has been developed by Becco Chemical Division of Food Machinery and Chemical Corporation. It is quick and simple to use and it is said to reduce the porosity of thin electrodeposits.

The process replaces the conventional acid pickle by a brief dip in a 25 per cent solution of Becco ammonium persulfate, followed by a warm-water rinse. It produces an unusually clean surface on the copper—free of oxides — which will not re-oxidize quickly.

Tests conducted by the developer have shown that the persulfate-cleaned copper surface is much more favorable for the production of a low-porosity electrodeposit than that obtained by

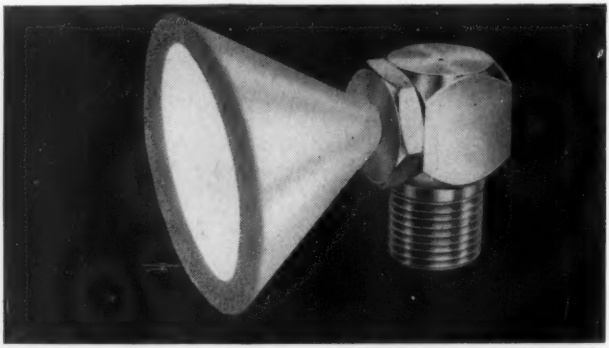
(continued)

METAL FINISHING NOZZLE PROBLEM

To select a nozzle which will efficiently spray phosphate coatings to metal surfaces.

SOLUTION

Delavan Type 2172 WR nozzle



This outstanding nozzle can operate effectively at pressures as low as 5 psi. Made of 316 stainless steel, the 2172 WR offers high resistance to corrosion, assuring longer, more dependable service. There are no vanes, cores or other obstructions to promote clogging.

Whatever metal finishing nozzles you require, there's a Delavan nozzle that does the job best. Write today for Catalog 33A.

DELAVAN Manufacturing Company

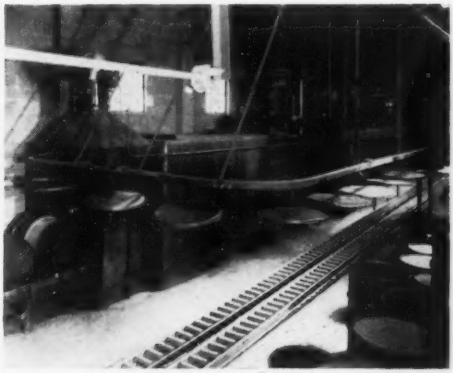
WORLD'S LARGEST MANUFACTURER OF NOZZLES • WEST DES MOINES • IOWA

For more data circle 363 on Postpaid Card

"DRUMMING"

up a faster output of quality, finish-baked steel drums & covers in a lanly CONVEYORIZED OVEN

If your manufacturing operations involve the application and drying or baking of a product finish, you're on solid ground when you consult LANLY regarding your oven or dryer requirements.



Typical of all Lanly installations, this oven exemplifies coordinated mechanization with low cost efficient drying action.

LANLY welcomes a discussion of your drying and baking operation problems. Write for Catalog No. 560 and get better acquainted with our organization.

Central and South American Representative; Interkiln De Mexico S. A. Mexico 4, D. F.

Find Your Representative In The Yellow Pages

THE lanly CO.

FINISHING OVENS

2800 Euclid Avenue • Cleveland 15, Ohio

Atlanta, Georgia • Birmingham, Ala. • Boston, Mass. • Chicago, Ill. • Cleveland, Ohio
Columbia, So. Carolina • Columbus, Ohio • Detroit, Mich. • Houston, Texas
Pittsburgh, Pa. • Rochester, N. Y. • San Francisco, Calif. • St. Louis, Mo.

For more data circle 364 on Postpaid Card

other commonly used cleaning and pickling methods. Plate adherence is excellent, too, according to these tests.

In one case, a hard nickel plate 0.0003 inch thick deposited on the persulfate-cleaned copper showed a 73 per cent reduction in the number of pinholes compared to the same plate deposited from the same bath on an acid-pickled copper.

In another case, a Sel-Rex bright cyanide gold plate 0.0002 inch thick deposited on a persulfate-cleaned copper showed an 85 per cent reduction in pinholes compared to the same plate deposited from the same bath on an acid-pickled copper.

Details of the process are contained in Becco Bulletin 109.

Manufacturer: Becco Chemical Div., Dept. FMC, Station B, Buffalo 7, N. Y.
For more data circle **130** on Postpaid Card

Steel Armored Hose Reduces Fire Hazard in Painting Installations

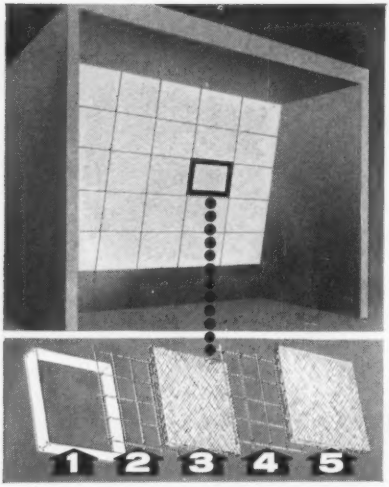
A steel armored hose recently introduced by Samuel Moore & Co. has outstanding resistance to heat and

Synflex Hi-Temp Armored Hose

mechanical damage. When used to carry paint, it reduces the possibility of fire.

Called Synflex Hi-Temp, this hose was originally developed for a large automotive plant, where it is used for the drop lines in spray booths.

(continued)



A Paint Arrestor module consists of a Holding Frame (1), two Snap-in Grids (2 and 4), two Paint Arrestors (3 and 5). Loaded Paint Arrestors are simply replaced as necessary. And, they're also ideal for air-borne ink, mist, dye, frit, etc.

CONTROL PAINT OVERSPRAY the inexpensive, effective way!

The advantages of R P Paint Arrestors, the inexpensive, disposable air filters are many. Overspray solids are trapped before they reach the exhaust stack...to reduce fire hazards, damage to adjacent property...disagreeable and time-consuming maintenance work. Installation? —easy and fast. Maintenance? —remove loaded Paint Arrestor and replace a new one. Adaptability? —ideal for any type, any size booth, new or existing.

RP® PAINT ARRESTORS

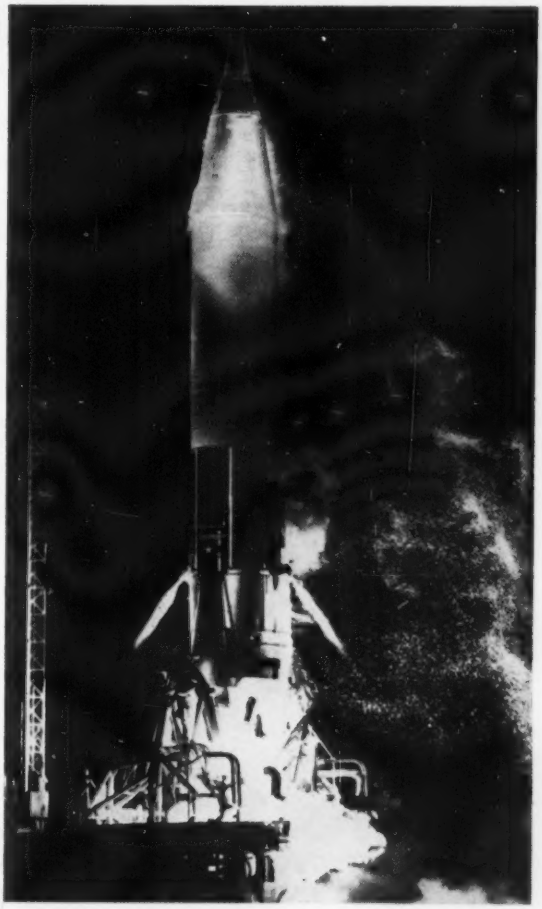
RP | Products of Research — UL Listed

RESEARCH PRODUCTS Corporation
Dept. 38, MADISON 1, WISCONSIN

For more data circle 365 on Postpaid Card

"WE PLATE MISSILE CONTACTS WITH SEL-REX BRIGHT GOLD* -AN EXTRA MEASURE OF RELIABILITY"

—Elco Corporation, Philadelphia, Pa.



The failure of a single component can put even the mighty Atlas Missile out of commission. That's why an electroplate of SEL-REX BRIGHT GOLD is specified to give an extra measure of reliability to Elco's patented VARICON Contacts used in missiles, rockets, computers and similar critical applications.

The VARICON Contact, with its fork-like design and 4 coined mating surfaces, offers exceptional resistance to numerous punishing insertions and withdrawals—meeting or surpassing the most exacting specifications. Patented SEL-REX BRIGHT GOLD, which produces a fine grained, dense electroplate—twice as hard as conventional 24K Gold plate — is a major reason for the reputation of quality and reliability enjoyed by VARICON throughout all industry.

SEL-REX makes the world's largest selection of processes and systems which take the guesswork out of plating with precious metals. Baths are simply maintained with scientific precision by additions of pre-measured salts or solutions. Your assurance of consistent quality results from one batch to the next.

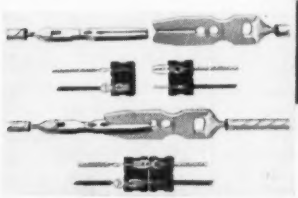


Photo shows Elco's patented Varicon Connectors and unique fork-like contact plated with Sel-Rex Bright Gold.

An internationally based network of sales and service technicians is at your beck and call to make sure you get the optimum results built into every SEL-REX PROCESS.

Complete technical literature free on request. Specify precious metal(s) and your application.

*Patented.

Patented processes for plating with Gold, Rhodium, Platinum, Paladium, Silver, and to produce "custom alloys" for your particular requirements.

Sel-Rex

SEL-REX CORPORATION

NUTLEY 10, NEW JERSEY

The World's Largest Selling Precious Metal Plating Processes

For more data circle 366 on Postpaid Card

The outer cover of the hose is 0.012 inch thick galvanized steel. The hose itself is a seamless nylon tube covered with black vinyl and wrapped with Mylar-backed asbestos tape.

Besides its use in carrying paint, this hose also is ideal for carrying chemicals and flammable liquids.

Cost is said to be substantially less than a comparable installation of black iron pipe.

Manufacturer: Synflex Products Div., Samuel Moore & Co., Mantua, Ohio.

For more data circle 131 on Postpaid Card

★ ★ ★

Navy Develops Fire-Retardant Enamel

A fire-retardant protective enamel has been developed by U. S. Navy scientists at the Industrial Test Laboratory of the Philadelphia Naval Shipyard. It will be used on previously primed or painted metal bulkheads and other interior surfaces.

The recently developed paint has passed a stringent Navy test which requires that paint films on a steel panel not become ignited upon heating electrically for 30 seconds to a temperature of 2300 deg. F.

While designed by the Navy for use aboard ships, the paint is also suitable for other military uses and for residential and industrial applications.

The key ingredient that makes possible a decorative, corrosion-resistant alkyd coating with inherent fire retardance is chlorendic acid, a

(continued)

Formax manufactures a complete line of Buffing and Polishing Compounds in bar, tube and liquid form suitable for all classes of metal, plastic and lacquer finishes. Formax compounds used together with the famous Formax ZIPPO long wearing buffing wheels make a combination that's hard to beat. Our extensive manufacturing, laboratory and testing facilities are always at your disposal.

Descriptive Catalogs Available on Request.

FORMAX MFG. CORP.
DETROIT 7, MICHIGAN
"THE FOUR McALEERS"

For more data circle 367 on Postpaid Card

INTERLOX...

a better, lower cost, easily controlled phosphate coating that LOCKS your finish to the metal.

Interlox's unusual cleaning ability and radically different accelerator produce an even, fine grained coating that locks an organic finish to the metal ● Interlox gives you the ultimate in appearance, adhesion and corrosion resistance — no streaks, stains, powdery residue or flash rusting. Interlox baths are unusually long lived and require less replenishment and control ● Extra cleaning power is easily obtained by the addition of a low-cost detergent only, avoiding the danger of over-phosphatizing by adding complete phosphatizing compound when only cleaner is needed ● Interlox is available in spray or immersion type, single or multiple stage.

Licensed Manufacturers { Alert Supply Co., Los Angeles, California
Armalite Company, Ltd., Toronto, Canada

NORTHWEST CHEMICAL COMPANY
9310 ROSELAWN DETROIT 4, MICHIGAN

For more data circle 368 on Postpaid Card

STAMPINGS VACUUM METALLIZED

BRIGHT FINISH . . . LOW COST . . . HIGH QUALITY

Now you can eliminate your high polishing and plating costs and obtain the same results by hi-vacuum.

METAPLAST has the "know-how" and specially built equipment to handle large production runs at low prices. Finishes have been successfully applied in the lamp, cosmetic and houseware industries.

Write for further details.

Pioneers in Vacuum Metallizing since 1947

METAPLAST PROCESS, INC.

34-51 56TH STREET

Woodside, L. I., New York

For more data circle 369 on Postpaid Card

dibasic acid which incorporates more than 50 per cent by weight of stable chlorine.

Marketed commercially as HET® Acid and produced by the Eastern Chemical Division of Hooker Chemical Corporation, this acid becomes a permanent part of the chemical structure of the new resin and does not adversely affect other properties of the coating.

The chemical structure of this paint affords an important advantage over previously available fire-retardant paints in that mineral spirits may be used as a thinner and solvent instead of the relatively more toxic xylene and turpentine; thus, greater safety to personnel is realized and time is saved in painting poorly ventilated enclosed areas.

The semigloss enamel provides the appearance, wearability, scrubbability and other qualities associated with conventional alkyd-type paints. The paint may be applied with hot spray equipment.

Manufacturer of the basic resin: Eastern Chemical Div., Hooker Chemical Corporation, Box 344, Niagara Falls, N. Y.

For more data circle **132** on Postpaid Card

★ ★ ★

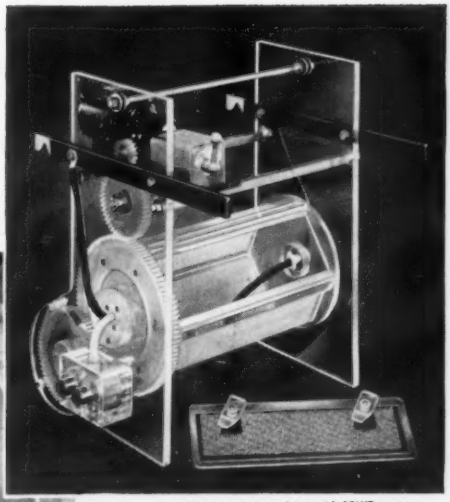
Automatic Machine for Painting Depressed Areas

A machine recently developed by Conforming Matrix Corporation applies paint and dial fillers on depressed numerals, letters and calibration markings at rates up to 2000 pieces per hour.

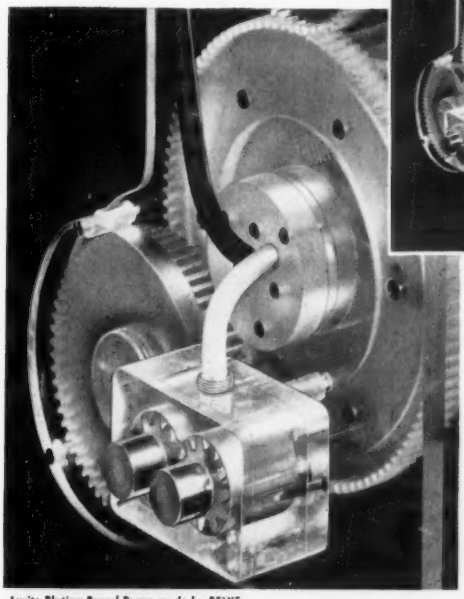
The machine (Model FWP-40) paints parts such as control knobs, dials, clock faces and instruments in three steps: spraying the depressed

(continued)

Pumps solution into cylinders with small openings



BELKE 6x12 Portoplater with BELKE pump



Lucite Plating Barrel Pump made by BELKE

Cracks the barrier to a big new field of plating opportunity

Most platers know the problems presented in plating small, slender pieces such as needles. Such work requires cylinders with very small perforations. The small holes slow down movement of solution through the cylinder.

In addition, the small pieces make a dense load that takes plating metal from the solution very fast; with a normal load the solution does not bring enough metal into the cylinder and slow plating and poor plating results.

The new BELKE pump-equipped portoplater solves this problem. The cylinder-driven pump forces solution into the cylinder; brings in new solution with the needed metal regardless of perforation size.

The result is improved plating and increased output with all small, compact plating loads plus the ability to plate efficiently work heretofore not practical for barrel plating.

BELKE
Pump-Equipped Portoplater

FEATURES

1. Cylinder driven pump forces solution into cylinder providing positive solution change regardless of size of perforations.
2. Pumping rate—60 gallons per hour.
3. Suitable for most solutions.
4. Plating capacity—two quarts.
5. Cylinder—O.D. 9x15; I.D. 6x12.
6. Motor—115 V, 60 cycles.
7. Perforations—Specify.

Whatever your requirements for plating room equipment, send specifications or write.

Belke MANUFACTURING COMPANY
947 N. Cicero, Chicago 51, Ill.
EVERYTHING FOR PLATING PLANTS

For more data circle 370 on Postpaid Card

Special Painting Machine: depressed areas painted automatically; sharp demarcation.

area through a mask; wiping off the excess filler while still wet; force drying; and polishing the area that is not to be painted to remove all traces of paint and leave a clean, sharp line. This is all done automatically. Parts can often be unloaded automatically.

Manufacturer: Conforming Matrix Corporation, 356 Toledo Factories Bldg., Toledo 2, Ohio.

For more data circle **133** on Postpaid Card

★ ★ ★

Plastic Plating Stop-Off Strips Easily

Fidelity Chemical Products Corporation has introduced a crystal-clear plastic coating which is useful as a plating stop-off.

Coating No. 637 is a crystal clear plastic that leaves no film of any type on metal when stripped away. Since Dip-Pak No. 637 exudes no oil when left standing at room temperature, it

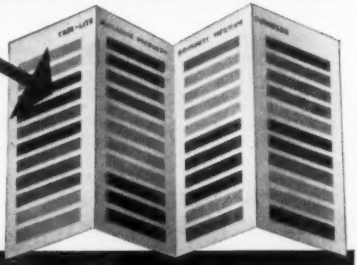
(continued)

NOW 44 COLORS

CRES-LITE
Pure, Brilliant, Metallic
BRONZE POWDERS

Including
New, Gleaming Gold, Copper and Aluminum!

Get New FREE Color Card
Shows 44 in-stock colors for immediate delivery. Fast service guaranteed on special or matched colors



CRESCENT BRONZE POWDER CO.
118 W. ILLINOIS ST., CHICAGO 10
1841 S. FLOWER ST., LOS ANGELES 15

For more data circle 371 on Postpaid Card

FREE

METAL CLEANING ANSWERS . . .

AT YOUR FINGERTIPS

How many hours have you spent in digging for the right cleaning method for some newly-encountered metal or soil?

To answer your needs, Magnus has prepared this new, easy-to-read, easy-to-file folder — a complete chart-guide to picking the right method, chemical and solution for all commonly-encountered soils and surfaces.

COVERS

SOAK CLEANING
SPRAY WASHING MACHINE CLEANING
ELECTROCLEANING
STEAM GUN CLEANING

magnus
CHEMICAL COMPANY INC.
MATERIALS • METHODS • MACHINES

MAGNUS CHEMICAL CO., INC.
208 South Avenue, Garwood, N. J.

Please send me my **free** copy of your new "Guide to Effective, Economical Metal Cleaning."

Name _____

Position _____

Company _____

Address _____

City _____ State _____

A WORLD-WIDE ORGANIZATION SPECIALIZING IN THE CLEANING AND PROTECTION OF ALL SURFACES.

For more data circle 372 on Postpaid Card

Dip-Pak No. 637: a clear stop-off

is ideal as a semi-permanent coating or a temporary protective coating.

Dip-Pak materials are shipped as solid plastic blocks and melted in an electric or oil-jacketed pot just before application. This formulation melts at 360 deg. F. in a melting pot and may be used at 320 to 350 deg. F. The part is dipped into the molten plastic, withdrawn, and allowed to cool. The entire operation takes only seconds and the metal object is completely coated with a tough, abrasive, moisture-resistant, shock-resistant, transparent film. After shipment, storage, or processing, the Dip-Pak coating may be easily removed by slitting with a sharp blade and peeling. Peeled Dip-Pak is reusable.

Manufacturer: Fidelity Chemical Products Corp., 470 Frelinghuysen Ave., Newark 12, N. J.

For more data circle **134** on Postpaid Card

★ ★ ★

Titanium Anode Baskets Resist Plating Acids

Titanium Products Corporation has introduced improved all-titanium anode scrap baskets in sizes of 3 by

Rhodium
ELECTROPLATING
SOLUTIONS
Rhodium electroplate is suggested for these applications: on wave guides and microwave equipment which may be used in marine atmosphere; in printed circuits; in electrical contacts where light contact pressure and low voltages are involved... Rhodium is very hard and corrosion-resistant.
This Rhodium plating solution is easy to use. It operates over a wide range of temperature and current densities. We will be glad to plate samples without charge.
Consult our staff
SINCE 1901
SIGMUND COHN MFG. CO. INC. 121 SOUTH COLUMBUS AVE. MOUNT VERNON N.Y.

For more data circle 373 on Postpaid Card

12 by 12 inches, 3 by 12 by 18 inches and 3 by 12 by 24 inches.

These baskets resist most acid plating solutions.

Manufacturer: Titanium Products Corporation, 9301 French Rd., Detroit.

For more data circle **135** on Postpaid Card

★ ★ ★

Bench-Model Vibratory Finisher for Small, Precision Parts

A bench-made Vibratory machine announced by Almco, Queen Products Div., King-Seeley Corp., quickly finishes precision instruments, gears, missile components, electrical parts and other small metal objects.

The portable Almco Model VT-70 is 14 inches long, 11½ inches wide and 13¾ inches high. The tub holds ¾ gallon and can be removed from the vibratory mechanism. The fixed vibration frequency of the VT-70 is 3300. This permits fast finishing while producing smooth, high-quality surfaces.

Almco's Portable Vibratory Finishing Unit

Model VT-70 finishes loads of parts by vibratory movement of a horizontal tub filled with parts and media. The "scrubbing action" thus produced

(continued)

SPRA-CON
COMPLETE FINISHING SYSTEMS
POWER SPRAY WASHERS
DRYING OVENS
PAINT BAKING OVENS
FLOW COAT MACHINES
AIR REPLACEMENT SYSTEMS
CONVEYORS
SEND FOR FREE CATALOG
the SPRA-CON COMPANY
3600 ELSTON AVE. • CHICAGO 18, ILLINOIS
For more data circle 374 on Postpaid Card

enables fine finishing to be accomplished efficiently. Parts can often be finished from 10 to 100 times faster than with conventional finishing machines, Almco reports.

Manufacturer: Almco, Queen Products Div., King-Seeley Corp., Albert Lea, Minn.

For more data circle **136** on Postpaid Card

Chemical Treatment Produces Organometallic Compound That Improves Paint Adhesion

A chemical surface treatment for aluminum improves the adhesion of paints, lacquers, enamels, adhesives and other coatings.

With all air-dried lacquers and enamels, Chemlok 720 produces unmatched adhesion, the manufacturer reports. Chemlok 720 also improves adhesion of baked finishes.

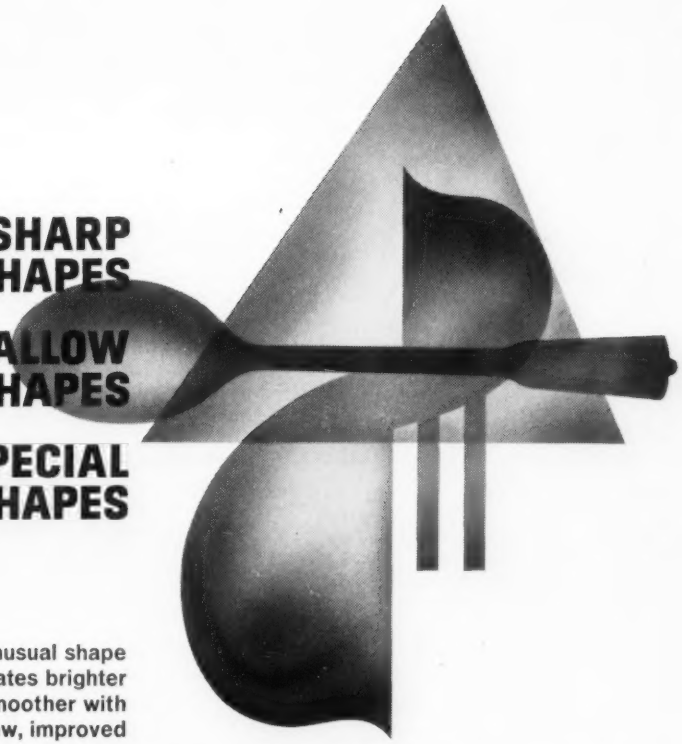
Adhesion obtained with Chemlok 720 is stronger than the coating applied—the paint film will fail cohesively rather than strip off the aluminum. This means that paints and coatings adhere until completely weathered away, assuring long-term protection.

Coated aluminum parts can tolerate greater deformation during manufacture without injuring the coating.

The Chemlok 720 treatment results in formation of polar organo-aluminum compounds of molecular thickness at the aluminum surface. These organic compounds have excellent compatibility with organic coatings subsequently applied.

(continued)

For more data circle **375** on Postpaid Card



SHARP SHAPES

SHALLOW SHAPES

SPECIAL SHAPES

Any unusual shape plates brighter and smoother with new, improved

COPPER-LUME

Bright copper plating of "problem" shapes *used to be* a tricky operation! Now, you can give *any* shape a bright, dependably uniform copper finish with COPPER-LUME, the remarkable new bright cyanide copper process by H-VW-M.

COPPER-LUME deposits a uniformly bright coat that makes an ideal base for nickel-chromium deposits. And, whenever required, COPPER-LUME buffs beautifully to maximum brightness in minimum time!

Want to know more about better copper plating with COPPER-LUME? Write today for complete details.

Hanson-Van Winkle-Munning Company, Matawan, New Jersey.
Offices in Principal Cities.

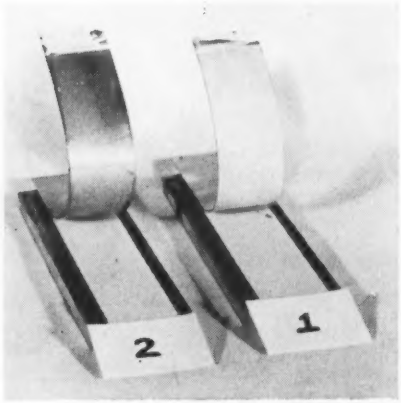
Alert Supply Company is H-VW-M in the West.
Los Angeles • San Francisco

H-VW-M

Progress in metalfinishing through advanced processes • equipment

COPPER LUME—U.S. PATENTS 2881121, 2881122

For more data circle 376 on Postpaid Card



Unretouched photo shows how Chemlok 720 improves adhesion of paint applied on aluminum. In both tests—No. 1 and No. 2—paint is bonded to metal test block below and to the bent sample. Sample on left is untreated aluminum. Paint peeled off, stuck to test block. Sample No. 1 is the same paint applied over a metal treated with Chemlok 720. Paint failed cohesively, adhering to both the test block and the test panel.

Chemlock 720 is a cathodic treatment. It prevents under-cutting and blistering of paint films.

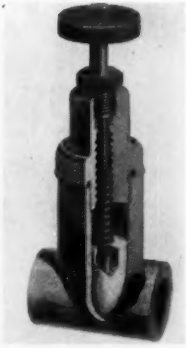
Chemlock 720 does not affect the base color of the aluminum and can be used with all paints or clear coatings. The process is fast, simple, economical, and produces no sludge in treatment tanks. It is adaptable to batch or continuous processing with either spray or immersion equipment.

Manufacturer: Department 89, Hughson Chemical Co., Erie, Pa.

For more data circle **137** on Postpaid Card

★ ★ ★

Polypropylene Plastic Valves Have Excellent Chemical Resistance



Plastic Valve

Polypropylene valves recently introduced by Vanton Pump & Equipment Corporation are light in weight, have high strength and chemical resistance. They resist most solvents, greases, oils and the majority of common acids at temperatures up to 185 deg. F.

Vanton polypropylene throttlable gate valves are available from stock in sizes from ½ to 2 inches with socket-weld, flanged or screwed ends. They combine straight-through no-pressure-drop flow with close throttling control.

Manufacturer: Vanton Pump & Equipment Corporation, Hillside, N. J.

For more data circle **138** on Postpaid Card

YOUNG BROTHERS *Baking and Drying* **OVENS**

designed and built for every product and process requirement

Batch and Conveyor types up to 1000° F.

Write for Bulletin 157

YOUNG BROTHERS CO. 1830 Columbus Road Cleveland 13, Ohio

Over 60 years of service

For more data circle 377 on Postpaid Card

High-Speed Vacuum-Diffusion Pumps

The addition of two high-speed vacuum-diffusion pumps with 2-inch and 10-inch casing diameters completes Consolidated Vacuum Corporation's PMC pump line. These pumps maintain high peak speeds over long pressure ranges.

The high speed and throughput of these pumps are obtained from significant innovations in design. An immersion heater in the boiler reservoir speeds oil vaporization by direct contact with the pump fluid. Extension of this heater assembly above the fluid level ensures effective heat-input and provides an additional "boost" to the vapor phase. More efficient jet assemblies of cast aluminum allow for a shorter, slightly wider pump casing, resulting in optimum diffusion pumping, minimum vapor backstreaming.

All PMC pumps have an operating range of 2×10^{-7} to 1×10^{-2} mm. Hg. The 2-inch model pumps at a speed of 105 liters per second over the pressure range of 9×10^{-5} to 3×10^{-3} mm. Hg. The 10-inch PMC pumps at 4100 liters per second over the pressure range of 5×10^{-5} to 1.5×10^{-3} mm. Hg.

Manufacturer: Consolidated Vacuum Corp., Rochester 3, N. Y.

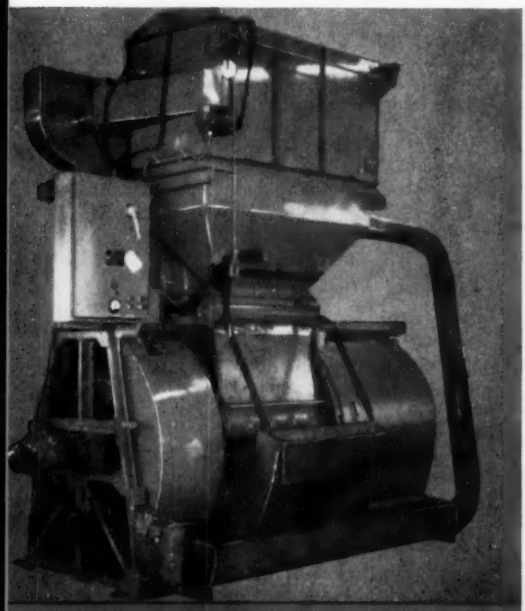
For more data circle 139 on Postpaid Card

★ ★ ★

Fluidized-Bed Coater Applies Plastic Coatings

Vibro-Fluidizers are especially designed for use in coating objects by the fluidized-bed process. The fluidizer consists of a tank having upper and lower sections divided by a porous plate. Air or gas flowing through the porous plate fluidizes the powdered

(continued)



HARPER BUFFING MACHINE CO.

EAST HAMPTON • CONNECTICUT

For more data circle 378 on Postpaid Card

NO BUFFS
NO FIXTURES

80% Savings on Labor and Materials by present users — same for short and long runs.

HI-G-Free Grain-ACTION can produce similar savings on over half the jobs now buffed.

FINISH—Equal or superior to Buffing. Intricate detail and complicated shapes preserved.

RANGE — All Metals — Most Plastics; sizes from watch screws to headlamps —

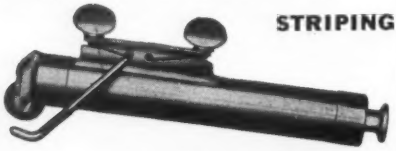
You can finish better for less with the HARPERIZER.

In addition, manufacturers of the finest automatic machines using wheels and fixtures to buff, deburr and polish.

Ask for a Demonstration
Write or Phone (ANdrew 7-2553)

HARPERIZER

STRIPES MAKE THE DIFFERENCE AND BEUGLER MAKES THE DIFFERENCE IN STRIPING



A Beugler Striper is the professional choice, yet it's so simple a child can use it. 2⁻ years' experience manufacturing striping tools exclusively has made Beugler the absolute criterion of striping instruments. When you buy a paint striper, buy the best—Buy a Beugler.

STRIPE FOR DECORATION OR IDENTIFICATION

Three Models—Fourteen standard size stripes from which to choose. 1/32 to 1/4 inch. Also many special stripes, concave, convex and double stripes.

Craftsman Model $6.45
2 size stripes—Single guide holder

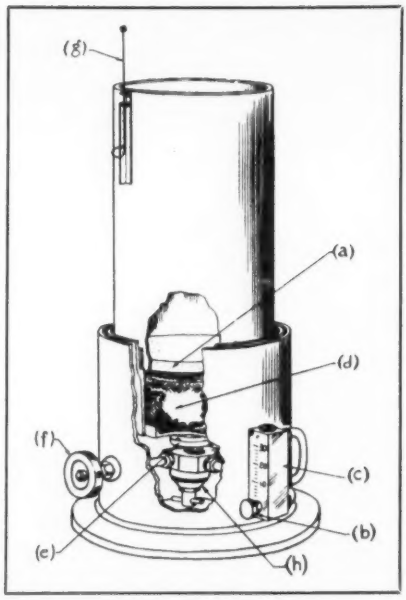
Deluxe Model $10.00
3 size stripes—Double guide holder

Jumbo Model $14.50
2 size stripes—Double guide holder

2,000 Dealers to serve you—your paint store or auto parts house can supply Beugler products. If no dealer near you, send your order direct or write for literature and information.

BEUGLER MANUFACTURING CO.
4314 W. Second Street, Los Angeles 4, California

For more data circle 379 on Postpaid Card



Cutaway drawing illustrates operating components of Armstrong Vibro-Fluidizer: (a) ceramic distributor plate; (b) needle valve for control of air flow; (c) flowmeter with direct reading of cubic feet per hour; (d) removable cartridge of dessicant for drying of air; (e) air-turbine-driven vibrating unit; (f) valve for regulating frequency of vibration; (g) vibrating reed to indicate frequency of vibration; (h) safety pressure regulator to reduce pressure from compressed air supply.

resin in the upper section of the tank so that it has the appearance of a boiling liquid. The coating process consists essentially of dipping a preheated object into this fluidized powdered coating material.

Manufacturer: Armstrong Products Co., Argonne Rd., Warsaw, Indiana.
For more data circle **140** on Postpaid Card

★ ★ ★

Electric Airduct Heaters Resist Corrosion in Humid Atmospheres

Edwin L. Wiegand Company, electric heating equipment manufacturer,

(continued)

Only IRIDITE® PROCESS ENGINEERED Chromate Conversion Coatings

Give you 5 additional benefits for Corrosion Protection—Paint Base—Decorative Finishing

1. A COMPLETE PROCESS ENGINEERED LINE

Developed for specific applications, there is an Iridite to provide the finish you desire, fit the equipment you have available and give the performance you require. Most Iridite coatings meet rigid military and civilian specifications.

2. EXPERIENCED TECHNICAL SERVICE

Our large field engineering staff is thoroughly familiar with chromate conversion coatings and related finishing operations. They'll help you check every step in your finishing operation to make sure you're getting the best possible finish on your products.

3. PRODUCT AVAILABILITY

Warehouses located in strategic industrial areas enable us to provide you with fast, economical delivery on any Iridite.

4. ECONOMY

The superior performance of Iridite provides low final cost by extending operating life and lowering maintenance costs. In addition, Iridite gives you a finish that adds considerably to the value of your product. There's an Iridite to meet every cost and performance requirement.

5. RESEARCH AND DEVELOPMENT FACILITIES

If you have an unusual application, we will gladly work with you. Our entire staff of experienced engineers and chemists, and our completely equipped facilities are at your service.

If you are using chromate conversion coatings to finish zinc, cadmium, aluminum, magnesium, silver, copper, brass or bronze — consider the above benefits of Iridite. For complete information, contact your Allied Field Engineer. He's listed under "Plating Supplies" in the yellow pages. Or, write for FREE TECHNICAL DATA FILE.

Allied Research Products, Inc.

4004-06 EAST MONUMENT STREET • BALTIMORE 5, MARYLAND
BRANCH PLANT: 400 MIDLAND AVENUE • DETROIT 3, MICHIGAN
West Coast Licensee for Process Chemicals: L. H. Butcher Co.
European Agent: Sture Granberger, Storgatan 10, Stockholm, Sweden
Chemical and Electrochemical Processes, Anodes, Rectifiers, Equipment and Supplies for Metal Finishing

IRIDITE® Chromates | IRILAC® Coatings | ISOBRITE® Brighteners | ARP® Supplies | WAGNER Equipment

For more data circle 380 on Postpaid Card

has announced two new series of Chromalox Electric Airduct Heaters. One series, Type FFT, has been designed for installation in existing ductwork; the other, Type FTD, is for installation as part of new ductwork.

Outstanding feature of both series is the Chromalox Fintube metal-sheath element which has a ceramic coating to prevent corrosion even after long exposure to high-humidity summer air. Both series have heavy-gauge, corrosion-resistant terminal boxes and frame parts spot-welded into a rigid assembly.

Manufacturer: Edwin L. Wiegand Co., 7500 Thomas Blvd., Pittsburgh.
For more data circle 141 on Postpaid Card

★ ★ ★

Roller Coater Applies Heavy Coating Without Flow Marks

A heavy-duty double-roll coater (Model No. 54-B) has been announced by Gasway Corporation. This machine employs the "double - roller" principle, which eliminates flow marks when applying a heavy film of lacquer or other air-dry materials. According to the manufacturer, the double coater also applies an adequate film in grooves and similar hard-to-coat areas. To achieve uniform coating on long panels and to eliminate overlay, a scraper bar is provided on the coating roll.

The Gasway 54-B can handle material up to 48 inches wide and up to 3 inches thick.

Each coating roll is fully adjustable without changing the setting of the

(continued)

MUNRAY
PLATING COATINGS

PC-7 **AIR-DRY COATING . . .**
The standard of the plating industry for 15 years. Requires no primer, no baking. Ideal for racks, fans, exhaust systems, patching plastisol coatings, tank patching, and other difficult areas and equipment requiring corrosion protection.

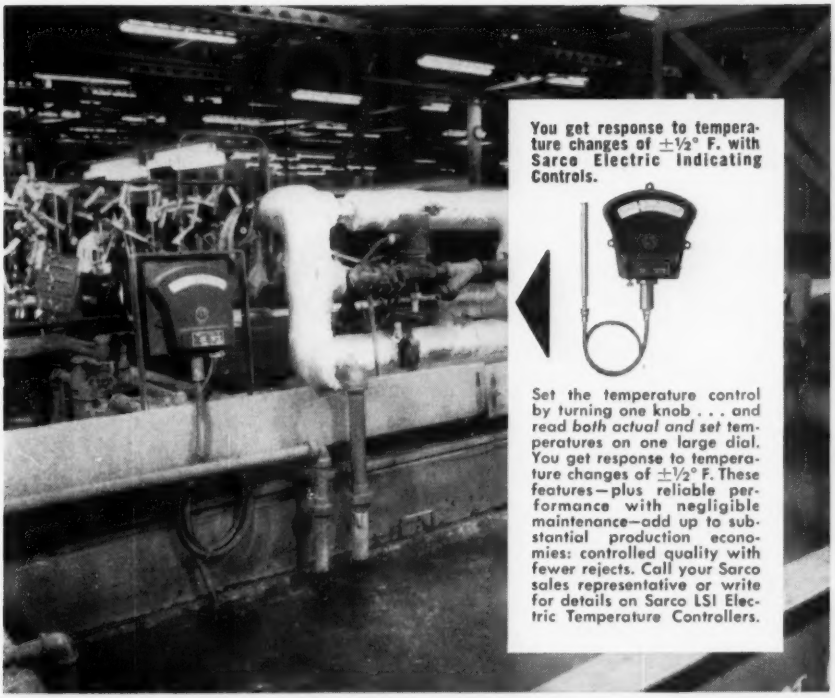
PC-21 **PLASTISOL GENERAL PURPOSE COATING . . .**
The ultimate bake-on Vinyl coating for permanent protection of racks, tanks, pipe and equipment. Provides coating thickness to 3/16" with one application, and is immune to effects of all plating chemicals.

SO-8 **STOP-OFF LACQUER . . .**
Won't creep when applied, won't allow underplating, strips like magic. How much easier can selective plating be made?

V-10 **AIR-DRY PERMANENT COATING**
Another unique Munray development of a modified Vinyl formulation to allow easily applied protection to large surfaces, such as complete walls, large processing equipment, hoods, and ducts, tank exteriors.

Write for catalog

MUNRAY PRODUCTS, DIVISION TEXTRON INC.
SPECIALISTS IN ENGINEERED PLASTICS
12412 Crossburn Avenue, Cleveland 35, Ohio • Distributors in All Major Cities
For more data circle 381 on Postpaid Card


You get response to temperature changes of ±½° F. with Sarco Electric Indicating Controls.
Set the temperature control by turning one knob . . . and read *both actual and set* temperatures on one large dial. You get response to temperature changes of ±½° F. These features—plus reliable performance with negligible maintenance—add up to substantial production economies: controlled quality with fewer rejects. Call your Sarco sales representative or write for details on Sarco LSI Electric Temperature Controllers.

At the Stratford, Conn., plant of Sikorsky Aircraft Division of United Aircraft Corporation, the parts finishing department uses Sarco Electric Indicating Regulators to control the temperature of baths for cleaning, anodizing, etching and rinsing of precision helicopter parts.

How Sikorsky controls temperatures in 50 process tanks with Sarco Electric Indicating Regulators

Fifty process tanks are used for parts finishing at the Stratford, Conn., plant of Sikorsky Aircraft—and temperatures in each are controlled accurately and automatically with Sarco Electric Indicating Regulators. In bath temperatures which range from 95° F. to 210° F., Sikorsky easily holds the temperature to close tolerances for rinsing, etching, anodizing and caustic cleaning of precision helicopter parts. Sikorsky reports that maintenance of their Sarco Electric Indicating Regulators is practically zero. 9777F

SARCO
COMPANY, INC.
635 Madison Ave., New York 22, N. Y.

For more data circle 382 on Postpaid Card

"proven its worth"

The CHURCHILL #501 Finger-Buff* performs every job a bias-type buff can do . . . and more too!

The Churchill #501 is a standard buff that has **proven** its worth for buffing all standard jobs without excessive wear on any part of the face. This general purpose Finger-Buff* #501, with the 6" wide buff finger (each overlapped by the two adjacent fingers) has **proven** to run at cooler temperatures, to wear down uniformly, to give a better cut and to last longer!

For low cost, cut-color operations it will pay you dividends to investigate this super-flexible Churchill Buff #501 . . . for all standard jobs **PLUS** those special jobs that give bias-type buffs trouble.

Churchill Finger-Buffs are competitively priced. Produced in all sizes from 3" to 21" diameters. For complete information write your problem.

*Churchill Finger-Buff, T.M. Reg. U. S. Pat. Off.

REPRESENTATIVES IN PRINCIPAL CITIES

Geo. R. Churchill Co., INC.

FREE Catalog

Dept. PF-80, Hingham, Mass.

Please send me FREE Catalog and complete information. My special buffing problem is _____

Name _____ Title _____

Firm _____

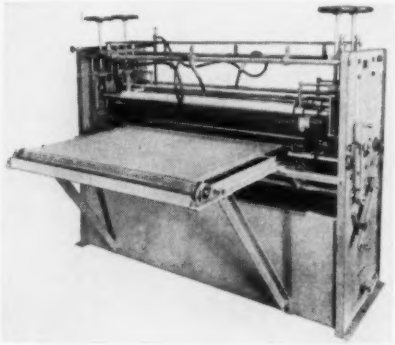
Street _____

City _____ Zone ____ State ____

For more data circle 383 on Postpaid Card

metering roll. A single hand adjustment raises and lowers both sets of coating rolls equally. Paint supply is retained by adjustable end seals on the coating rolls.

Each metering roll has a single side



Gasway "Double-Roller" Coating Machine

adjustment for paint film thickness and is provided with equalizing adjustment so that uniform pressure is exerted across the coating roll.

A variable-speed drive runs the machine at 30 to 90 r.p.m.

Steel, aluminum, fiberboard, paperboard and plastic are some of the materials that can be coated with this machine.

Manufacturer: Gasway Corp., 6463 N. Ravenswood Ave., Chicago 26, Ill.
For more data circle **142** on Postpaid Card

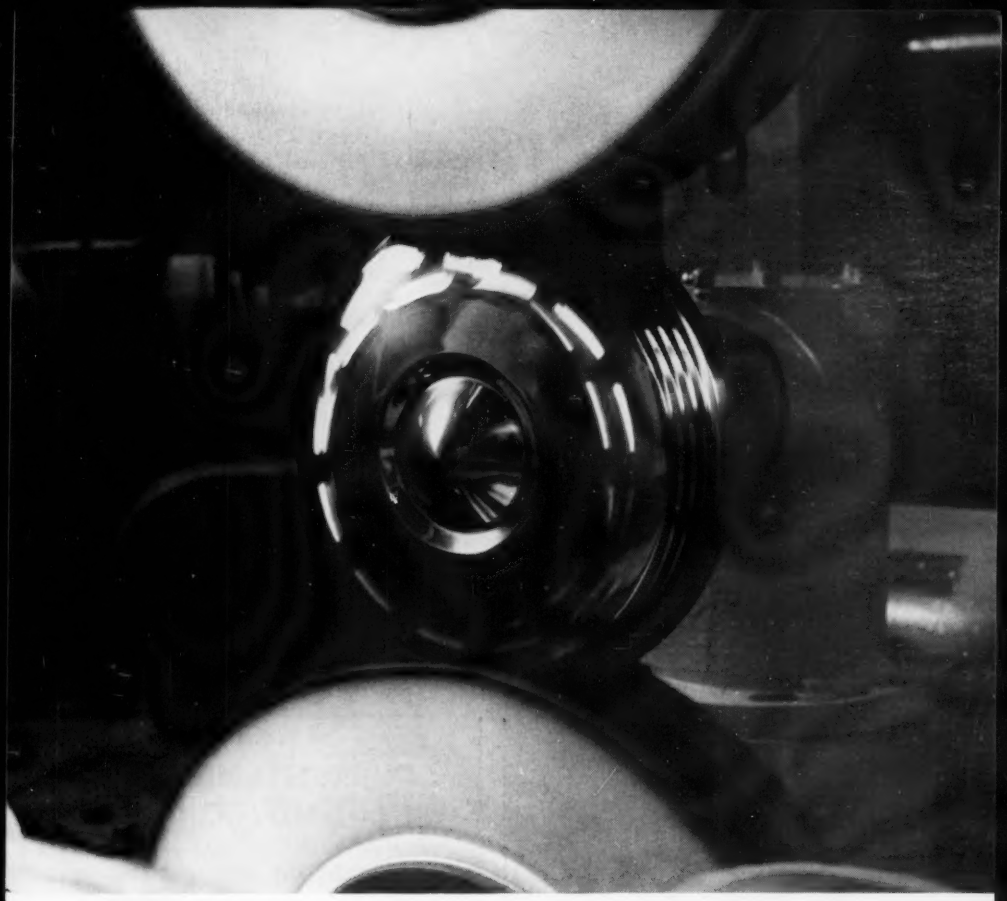
★ ★ ★

Refrigerating Unit Cools Plating and Anodizing Solutions

A "packaged" unit that cools plating and anodizing solutions has been introduced by Mayer Refrigerating Engineers, Inc.

The unit is built to cool various

For more data on advertisement on opposite page, circle 384 on Postpaid Card——→



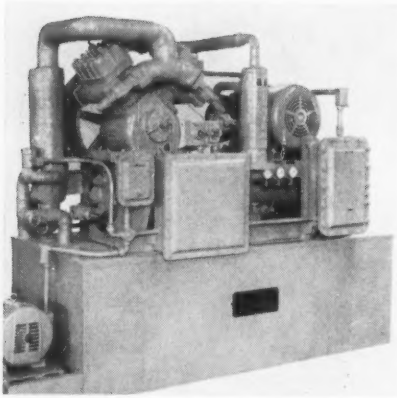
whatever your finishing problem

ACME has–or will design–a machine to solve it

Buffing automobile hubcaps with this versatile, compact Acme two-headed buffing lathe saves time, saves space and cuts production costs. Faster than ever before, and in one automatic high-speed operation, this multiple station unit removes "orange peel," pits and other surface blemishes from the curved surfaces of the part. It gives the hubcap an extra smooth, flawless, high-luster finish, ready for plating. ■ This is the kind of efficiency that cost-conscious companies, both large and small, expect . . . and get . . . from versatile Acme finishing machines. Basic machine designs achieved over fifty years give Acme customers an advantage of selecting one of many equipment arrangements, even for the most specialized finishing applications. ■ Automotive trim, building hardware, electrical and plumbing fixtures, household appliance and kitchenware, primary metal sheets and coils . . . these are some of the many mass-produced parts and products now served by Acme machines. If you have a finishing problem call or write for comprehensive catalog.

ACME MANUFACTURING COMPANY

1400 E. 9 MILE ROAD, DETROIT 20 (FERNDALE), MICHIGAN/LEADING PRODUCERS OF AUTOMATIC POLISHING & BUFFING MACHINES SINCE 1910



Mayer Explosion Proof Acid Chil-er

acid solutions by recirculating them through a refrigerating unit. It operates completely automatically, lowering the temperature of a solution to a preset temperature by merely turning a switch. No coils are needed in the tank, nor is an external heat exchanger required.

Manufacturer: Mayer Refrigerating Engineers, Inc., Lincoln Park, N. J.

For more data circle **143** on Postpaid Card

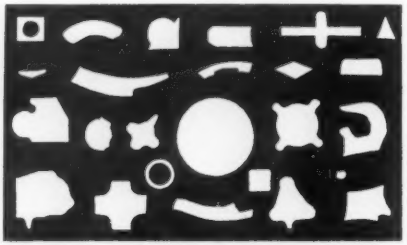
★ ★ ★

Coating Adheres to Bare, Untreated Aluminum

A coating which can be applied directly to uncleaned and untreated aluminum has been developed by Cosden Paint Company. Available clear or colored, it is suitable for use on foil packaging and gift wrappings.

The coating is a high-gloss baking synthetic with exceptional adhesive properties. It forms a tough, abrasion-resistant film which will not scratch, rub off or crack. One formulation has good resistance to exposure.

The coating can be applied by spray or roller coating. Baking schedules



Pre-Cut Masks Speed Finishing

Die-cut to close tolerances. Self-sticking — go on *fast*. Protect from finishing to inspection. Hundreds of stock shapes and sizes. Specials to order.

Narrow-Slit FINE LINE Masking Tapes — Precision slit from 1/64" to 1/4" (± .005"). 30 yd. rolls.

FREE Samples and Literature . . . Write:

W. H. BRADY CO. 40B

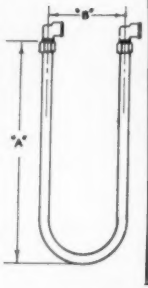
746 W. Glendale Ave., Milwaukee 9, Wis.

For more data circle 385 on Postpaid Card

IN STOCK

PURE TITANIUM HEATING COILS

FOR USE IN ALL ACID PLATING SOLUTIONS



COIL NO.	Eff. Heating Area Sq. Ft.	"A" In.	"B" In.	PRICE
Ti-30	.8	30	12	50.00
Ti-36	1.0	36	12	57.00
Ti-42	1.2	42	12	64.00
Ti-48	1.4	48	12	71.00
Ti-60	1.8	60	12	85.00

F. O. B. Detroit

TITANIUM PRODUCTS CORP.

9301 FRENCH RD., DETROIT 13, MICH.

WAlnut 1-3800

For more data circle 386 on Postpaid Card

vary from 10 seconds at 500 deg. F. to 15 minutes at 300 deg. F.

Manufacturer: Cosden Paint Company, Beverly, N. J.

For more data circle **144** on Postpaid Card

★ ★ ★

Rinse-Water Additive That Inhibits Spotting-Out

Entek CU-56, a rinse water additive which inhibits corrosion of copper and brass, has been introduced by Enthone, Inc. It produces an invisible film which prevents tarnishing, staining, spotting-out, green salt formation, pit corrosion and finger marking of copper and its alloys; and preserves freshly plated or cleaned metal surfaces during storage.

Entek CU-56 is a neutral liquid. It is used at a concentration of one gallon to every 99 gallons of water. The solution should be used as a final stagnant rinse following copper or brass plating or following cleaning of copper and brass sheet, strip or tubing. An immersion time of 5 to 30 seconds provides protection against 200 hours of tropical humidity conditions.

Entek CU-56 is a rapid-acting version of Entek CU-55; it reacts with copper and brass 20 times as fast as Entek CU-55, Enthone says.

The Entek CU-56 coating improves the solderability of copper and brass by reducing tarnishing during the warm-up period prior to flow of the solder. It also improves the adhesion of lacquers and enamels.

Manufacturer: Enthone, Inc., 442 Elm St., New Haven, Conn.

For more data circle **145** on Postpaid Card

VIBRA-WASHER

. . . THE COMPLETELY NEW AUTOMATIC PARTS WASHER AND METAL CONDITIONING MACHINE

- **Labor saving**
- **Automatic unloading**
- **For single or multi-stage operations**
- **No nesting of parts during cleaning or conditioning cycle**
- **Adjustable capacities to 10,000 lbs. per hour**

The versatile new Simplicity VIBRA-WASHER, revolutionary machine for washing and conditioning of small metal parts, stampings and castings, employs a vibrating work carrier that automatically conveys parts through cleaning or conditioning bath. Solution is forced around parts, even into blind drillings and slots. In single stage, VIBRA-WASHER removes chips, oil and grease quickly . . . economically. In multi-stage, several units in line will provide cleaning, rinsing and phosphating, eliminating "between-stage" handling. Write today for Bulletin 107, to: Industrial Washer Division.

Simplicity
TRADE MARK REGISTERED

212 **ENGINEERING COMPANY • DURAND 25, MICH.**

For more data circle 387 on Postpaid Card

Westinghouse Develops Immersion Tinning Process

Salts for depositing tin by an immersion process which improves solderability of printed circuits and other electronic components are available from the Westinghouse Electric Corporation. Called Wes-X® 500, the process imparts a white color to copper and copper base alloys, prevents oxidation of copper during soldering.

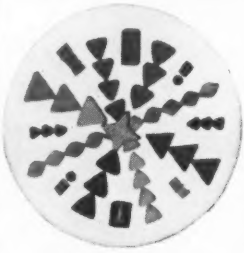
Deposition is rapid, up to forty millionths of an inch at room temperature. Since neither cyanide nor mineral acids are used, only normal precautions need to be taken when using the Wes-X® 500 process.

Manufacturer: Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pennsylvania.

For more data circle **146** on Postpaid Card

FORTUNE

BARREL FINISHING MEDIA FOR *ANY* TUMBLING NEED!



No jamming, or "rolling over" action.

Special shapes prevent jamming and rapid deburring saves costs.

Write for complete information.

FORTUNE INDUSTRIES, INC.

11770 DEXTER RD. CHELSEA, MICH.

Chelsea Phone—GR 9-3621

For more data circle 388 on Postpaid Card

Alkali-Tolerant Cleaner-Phosphate Coating

Detrex 910 chemically cleans and phosphate coats in one operation.

It is compounded so that it is able to accept up to 15 times more alkali without harmful results. Detrex 910 remains in the proper pH range to produce excellent iron phosphate coatings. Thus it can be used in practically all areas within the United States without requiring any special pH control.

Detrex 910 is designed for use in continuous mechanical spray washing equipment.

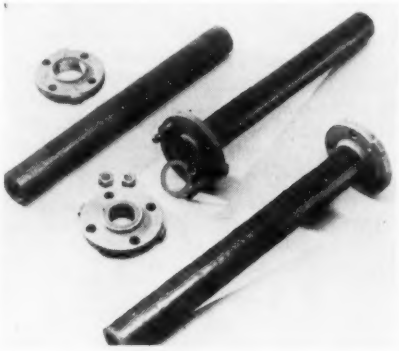
Manufacturer: Detrex Chemical Industries, Inc., P. O. Box 501, Detroit 32, Michigan.

For more data circle **147** on Postpaid Card

★ ★ ★

Plastic Pipe Carries Hot Corrosives at Temperatures up to 300 deg. F.

Reinforced furane plastic pipe that's particularly suited for use in handling



Eonite Pipe: assembles easily without special tools, resists acids, alkalies, solvents

acids, alkalis, and solvents has been introduced by Cornelius A. Rauh & Associates, Inc.

Called "Eonite," the chemical-resistant pipe is strong, dimensionally stable and can carry hot corrosive liquids at temperatures up to 300 deg. F., at pressures up to 150 p.s.i.g.

Eonite pipe withstands weathering and does not deteriorate with age. Physical and chemical properties are unimpaired by sunlight, moisture, and outdoor atmospheric conditions.

Resin used to produce the pipe is Durez 16470, produced by the Durez Plastics Division of Hooker Chemical Corporation.

Eonite pipe is easily installed. Since it does not soften or sag with heat it requires support only for pipeline weight. It is designed for leakproof field assembly with the patented Rauh Ring Lock Joint, which includes two cast iron standard A.S.A. flanges, two 4-degree tapered rings, and a hard asbestos gasket impregnated with neoprene and graphite. No cements, solvents, threading, welding or special techniques are required.

Manufacturer: Cornelius A. Rauh & Associates, Inc., 1191 Sunset View Dr., Akron 13, Ohio.

For more data circle **148** on Postpaid Card

For more data on any product mentioned, circle numbers on card opposite page 136.

★ ★ ★

Machine Accurately Meters Two-Component Materials

Equipment for applying catalyzed coatings, foams and other products that require mixing of two components before application has been introduced by Pyles Industries, Inc.

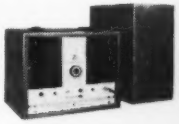
Called the "Duo-Flo," this machine accurately produces mixtures composed of as low as five parts per hundred of one component to as high as a 50-50 mixture.

20,000 TO 25,000 **CLEAN** PARTS DAILY

without rejects!

For one well-known manufacturer of sub-miniature relays, rejects due to imperfect copper plating are just a bad memory since installation of an Acoustica Ultrasonic Cleaning System. Now, in just a 20-second immersion of parts in a 140°F water-detergent solution, millions of cavitating bubbles literally **blast** away every trace of oil, film and other soils from even the deepest recesses. Plating can follow immediately, significantly reducing overall processing time.

To learn how Acoustica Ultrasonic Cleaning can drive your costs sharply down, quality sharply up, let an Acoustica representative analyze your cleaning operations.



WRITE US TODAY FOR HIS SERVICES

Acoustica Model DR-500 AH: 500 watt ultrasonic generator, 15-gallon tank. Other models from stock up to 2500 watts; special systems to order. Send for details of the complete Acoustica line.

acoustica

Acoustica Associates, Inc.
10400 Aviation Blvd., Los Angeles 45, Calif.
600 Old Country Rd., Garden City, N. Y.

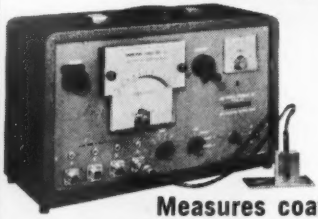
For more data circle 389 on Postpaid Card

Duo-Flo: for applying two-component coating compounds such as catalyzed coatings

The Latest

DERMITRON

NON-DESTRUCTIVE THICKNESS TESTER!



Measures coatings rapidly and accurately.

Instantly measures the thickness of metallic and non-metallic coatings and films.

Write for complete information.

UNIT PROCESS ASSEMBLIES, INC. UPA

53-15 37th Ave., Woodside 77, N.Y.

For more data circle 390 on Postpaid Card

The unit can be purged and cleaned in five minutes.

Manufacturer: Pyles Industries, Inc., 20855 Telegraph Rd., Detroit 41.

For more data circle **149** on Postpaid Card

★ ★ ★

Low-Cost Lab Oven Can Be Accurately Controlled

An economical electrically heated laboratory oven produces temperatures up to 550 deg. F. Made by Despatch Oven Co., Model 203-6 is

Despatch Model 203-6 Laboratory Oven: economical, takes little space, easily controlled

equipped with automatic controls, requires minimum attention.

Heat-up from room temperature to 550 deg. F. takes 45 minutes with an empty chamber. A high-velocity fan diffuses heated air throughout the chamber to keep temperatures uniform.

Small models are constructed so

that they can be stacked. In this way space is conserved where ovens with various temperatures are required in the same lab.

Manufacturer: Despatch Oven Co., 619 S.E. Eighth St., Minneapolis 14.
For more data circle **150** on Postpaid Card

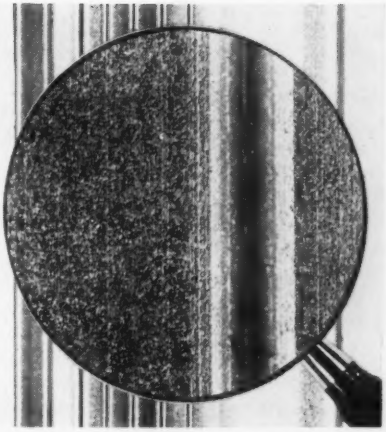
★ ★ ★

Precleaner Doesn't Dull Buffed Aluminum

Aldet is a mild, highly buffered synthetic detergent that is formulated for use in cleaning buffed aluminum prior to bright dipping, etching, anodizing, conversion coating, porcelain enameling and spot welding. It is also useful in cleaning galvanized iron, steel and terneplate. The Wyandotte product leaves no residual films to interfere with subsequent processing.

Aldet was developed for use before Wyandotte Mil-Etch, a non-scaling alkaline etchant for aluminum.

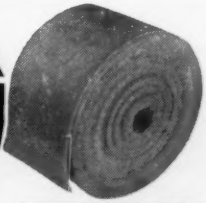
Manufacturer: J. B. Ford Div., Wyandotte Chemicals Corp., Wyandotte, Mich.
For more data circle **151** on Postpaid Card



Aluminum extrusion cleaned with Aldet and etched with Mil-Etch. Photomicrograph, 20X.

Bond® TACK CLOTH

PACKED IN ROLLS OR IN BULK
JUST THE WAY YOU WANT IT!



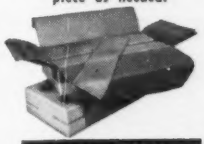
Stays Soft and Tacky — A SPECK-FREE FINISH EVERY TIME — Now available in white or gold — in Four Different Types of Cloth.

There's a big difference in TACK-CLOTHS—that's why BOND processes four different meshes of cloth with several types of formulations to give you the cloth that best "fits" your special needs. You can get BOND TACK CLOTH packed just the way that suits you best, too—in 150 yard Rolls of 36" wide cloth or in handy Cartons.

No matter which way you buy it, you can be sure that every square inch will stay SOFT and TACKY until the very last bit is used up.

All BOND TACK CLOTH is Spontaneous Combustion Proof, Lint-Free and Wax-Free. Gives a sparkling speck-free finish every time. Clean and Sanitary. No waste. Choice of Standard, Extra Tacky or Less Tacky.

IN ROLLS
Cut off any size piece as needed.



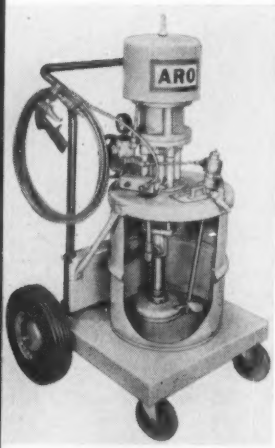
IN BULK
Size is 18" x 36"—folded to 4½" x 18" or 9" x 18" for ease of handling. Cut and folded—ready to use. Also Individually Packed in Glassine Envelopes —144 to the carton—

TRY THEM AND COMPARE RESULTS. Samples gladly sent upon request.
A WARRANTY OF SATISFACTION IN EVERY CARTON.

Bond® CHEMICAL PRODUCTS CO. 2639 N. CLYBOURN AVE. CHICAGO 14 • ILLINOIS
"The Tacky Wiper Specialist"

For more data circle 391 on Postpaid Card

Airless Spray Coating Pump Cuts Overspray, Exhaust Requirements



Aro Airless Spray

Pumps recently introduced by Aro Equipment Corporation supply coating materials to spray guns at pressures approximately twenty times the air-supply pressure.

Since no compressed air is used to atomize the paint, airless spray "floats" the paint to the work. This results in less overspray and reduced need for exhaust equipment, masking, drop cloths, and so on.

Another advantage claimed for the Aro process is a substantial reduction in the number of applications required to protect the area being sprayed. One coat of material applied by the airless method produces a thick protective film.

Aro airless spray coating pumps are recommended by the manufacturer for production and architectural painting.

One of the Aro pumps is said to be capable of covering 10,000 square feet of flat surface in eleven minutes.

Manufacturer: Aro Equipment Corp., Bryan, Ohio.

For more data circle **152** on Postpaid Card

★ ★ ★

Chemical Polish-Brightener for Zinc Die Castings

Conversion Chemical Corporation has introduced Kenvert No. 55, a powder which is used to make up solutions for chemical polishing and deburring of zinc die castings. This powder, combined with nitric acid and water, forms a solution for chemically polishing and bright dipping of zinc die castings.

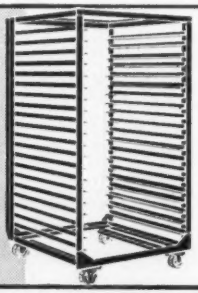
The solution may be used before plating to brighten the subsequent plate. It improves the appearance and corrosion resistance of die castings used without further finish. It also restores the finish to castings that have been spoiled through paint or plate stripping and corrosion during manufacturing. Paint adheres to the surface produced.

Kenvert No. 55 effectively deburrs zinc die castings if little stock-removal is required. It can be used for either bulk or rack processing.

Manufacturer: Conversion Chemical Corp., Rockville, Conn.

For more data circle **153** on Postpaid Card

FOR INCREASED PRODUCTION
and
GREATER OVEN CAPACITY
use WILDER
RACK TRUCKS
No. 660



27 Standard Style and 150 Standard Size platform, shelf, tray, rack, stake, bin, box and table trucks to select from. Special sizes can be furnished.

Write for Complete Information on Wilder's Full Line of Production Handling Equipment.

WILDER
MFG. CO., INC.
Port Jervis, New York

For more data circle 392 on Postpaid Card

Nickel Plate Accepts Bright Nickel Without Activation

A nickel plate that accepts bright nickel without special intermediate activation has been introduced by Seymour Manufacturing Co. It's called Hi-Thro.

The base nickel layers resulting from the Hi-Thro process are electrolytically deposited in conventional plating baths. They have excellent ductility and smoothness. Leveling characteristics of this bath are also excellent, Seymour reports.

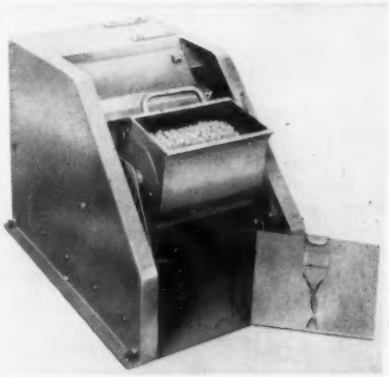
Manufacturer: Seymour Manufacturing Co., Seymour, Conn.

For more data circle **154** on Postpaid Card

★ ★ ★

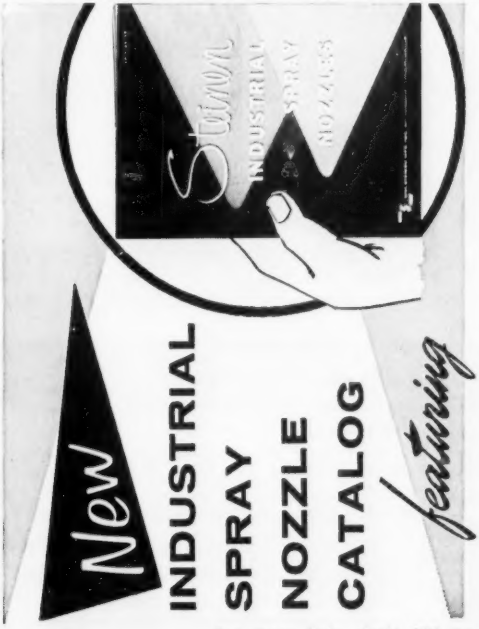
Elliptical Movement Improves Results in Vibratory Finisher

A tub-type vibratory finisher built by Vibraslide, Inc., finishes parts rapidly without impingement damage to work pieces. It's a result of controlled, positive, elliptical movement of the work container.



Vibraslide Vibrafinisher: positive, controlled elliptical movement of the work container

Recently announced by M-F Equip-



■ EXCLUSIVE Span-Jet Nozzles . . . 160° hollow cone spray . . . 180° flat circular spray . . . capacities .75 to 10 GPM

■ EXCLUSIVE Tan-Jet Nozzles . . . solid cone spray . . . capacities .50 to 10 GPM

■ EXCLUSIVE Simplified, time-saving nozzle selection tables

■ PLUS 32 pages of other illustrated industrial spray nozzles, flow chart, spray patterns, spray characteristics and basic engineering data.

Write for your free copy today.

WM. STEINEN MFG. CO.®
INDUSTRIAL NOZZLE DIVISION
41-39 Bruen Street, Newark, New Jersey

SERVING INDUSTRY FOR MORE THAN FIFTY YEARS

For more data circle 393 on Postpaid Card

ment Company, the unit offers infinitely variable amplitude from 0 to 3/8 inch.

Amplitude is generated by mechanical cam action, which can be adjusted easily without disassembly of the unit. Once adjusted, amplitude does not vary as a result of changes in frequency or weight of load, and it is not affected by the reaction of the suspension system.

The Vibraslide Vibrafinisher is now offered in capacities of one, 5 and 10 cubic feet.

Manufacturer: M-F Equipment Co., 410 Frelinghuysen Ave., Newark 12, New Jersey.

For more data circle **155** on Postpaid Card

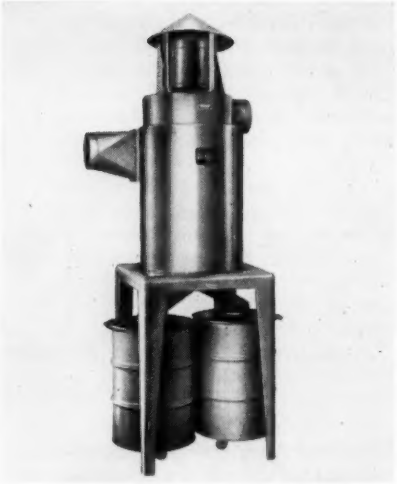
★ ★ ★

Larger Dust Collector Has 3500-c.f.m. Rating

A cyclone-type Duskolector introduced by Hammond Machinery Builders, Inc., has a direct-driven self-cleaning fan that's powered by a 7½-h.p., 3600-r.p.m. motor. It moves 3500 c.f.m.

Regular inlet size is 10 inches in diameter. Multiple inlets are available to connect ductwork to a number of dust sources.

Model DK-1055 collects the dust in two 55-gallon drums mounted on casters. Only the very light dust particles are exhausted outside.



Hammond DK-1055 Cyclone Duskolector

Manufacturer: Hammond Machinery Builders, Inc., 1622 Douglas Ave., Kalamazoo, Mich.

For more data circle **156** on Postpaid Card

★ ★ ★

Ultrasonic Cleaner Automatically "Tunes" Itself to Conditions in Tank

An ultrasonic cleaner that automatically compensates for the number of parts in the tank and other factors

FAST STRIPPERS *(For Metal Parts)*

Enamels • Lacquers • Primers • Vinyls • Synthetics

LEA SYNSTRIP...a fast working, non-corroding liquid, enamel, lacquer and synthetic coating stripper. Will not attack aluminum, zinc or any other base metal or alloy; does not dissolve the coating but breaks the bond. When heated to temperatures of 160° to 200° F., stripping synthetic coatings of the alkyd, epoxy, phenolic, silicone and urea type, is accomplished in a matter of seconds.

LEA COLDSTRIP...high speed stripper used at room temperature; only minimum ventilation; can be filtered for continued use.

Send details on your stripping problem and we will recommend a stripper for you to test.

The LEA Manufacturing Co.
16 Cherry Avenue, Waterbury 20, Conn.

For more data circle 394 on Postpaid Card

such as solution temperature and solution level makes it possible to situate generator and tank remotely. A product of Powertron Ultrasonics Corporaton, the unit is called the "Autosonic."

The only control on this unit is an on-off switch. This is made possible by a feedback transducer which corrects output from the ultrasonic generator to match activity in the tank.

Powertron Autosonic: self-adjusting ultrasonic cleaning unit can be remotely controlled

Transducers used in the unit are piezoelectric type, produce efficiency of 90 per cent.

Manufacturer: Powertron Ultrasonics Corporation, Patterson Place, Roosevelt Field, Garden City, L. I., New York.

For more data circle **157** on Postpaid Card

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

The 1960 PRODUCTS FINISHING DIRECTORY is the only complete buyers' guide in the finishing industry!

Why risk getting stuck with a primer that won't stick? Get SEA-LAC Alloy Primer. This bonding agent sticks fast and true to cadmium, zinc, galvanized steel, aluminum, and other metals. Works well under vinyls, acrylics, butyrates, conventional lacquers and baking enamels. Now available in yellow and black.

DURALAC CHEMICAL CORP.
84 LISTER AVENUE, NEWARK 5, N. J.

For more data circle 395 on Postpaid Card

RUST PROTECTION

. . . PROVEN DURING EXTENDED LINE STOPPAGES ON FINISHED PARTS— STEEL AND CAST IRON.

. . . AN EXCELLENT METAL CLEANER

I am Mr. U. Unique
I have no peer.
I am Mr. A. Film
Not oily—and invisible.
I am Mr. Rust Protection
Surpassing rigid field tests.
I am Mr. P. H. Neutral
My value of 8.
I am Mr. S. T. Ability
No separation.
1409
I am Mr. T. O'Lerant
To temperatures,
metals, or hard water.
I am Mr. I. N. Sensitive
To alkali.
I am Mr. L. O. Cost
Inexpensive, but not cheap,
with a low, low cost.

WRITE OR PHONE FOR MORE INFORMATION

Solventol CHEMICAL PRODUCTS, INC.

NEW HORIZONS IN DETERGENT CHEMISTRY

15841 Second Blvd. • TO 8-8466 • Detroit 3, Michigan

For more data circle 396 on Postpaid Card

Your Name_____ Your Title_____

Company Name_____

Company Address_____

City_____ Zone_____ State_____

Products Manufactured_____ Number of Plant Employees_____

August, 1960

products finishing

Circle KEY numbers (NOT PAGE NUMBERS) for more information on items described or advertised in this issue.

1	21	41	61	81	101	121	141	161	181	201	221	301-2nd Cov.	338	359	379	399	419	439	459	479	499	519
2	22	42	62	82	102	122	142	162	182	202	222	302-3rd Cov.	339	360	380	400	420	440	460	480	500	520
3	23	43	63	83	103	123	143	163	183	203	223	303-4th Cov.	340	361	381	401	421	441	461	481	501	521
4	24	44	64	84	104	124	144	164	184	204	224	304	321	341	362	382	402	422	442	462	482	502	522
5	25	45	65	85	105	125	145	165	185	205	225	305	322	342	363	383	403	423	443	463	483	503	523
6	26	46	66	86	106	126	146	166	186	206	226	306	323	343	364	384	404	424	444	464	484	504	524
7	27	47	67	87	107	127	147	167	187	207	227	307	324	345	365	385	405	425	445	465	485	505	525
8	28	48	68	88	108	128	148	168	188	208	228	308	325	346	366	386	406	426	446	466	486	506	526
9	29	49	69	89	109	129	149	169	189	209	229	309	326	347	367	387	407	427	447	467	487	507	527
10	30	50	70	90	110	130	150	170	190	210	230	310	327	348	368	388	408	428	448	468	488	508	528
11	31	51	71	91	111	131	151	171	191	211	231	311	328	349	369	389	409	429	449	469	489	509	529
12	32	52	72	92	112	132	152	172	192	212	232	312	329	350	370	390	410	430	450	470	490	510	530
13	33	53	73	93	113	133	153	173	193	213	233	313	330	351	371	391	411	431	451	471	491	511	531
14	34	54	74	94	114	134	154	174	194	214	234	314	331	352	372	392	412	432	452	472	492	512	532
15	35	55	75	95	115	135	155	175	195	215	235	315	332	353	373	393	413	433	453	473	493	513	533
16	36	56	76	96	116	136	156	176	196	216	236	316	333	354	374	394	414	434	454	474	494	514	534
17	37	57	77	97	117	137	157	177	197	217	237	317	334	355	375	395	415	435	455	475	495	515	535
18	38	58	78	98	118	138	158	178	198	218	238	318	335	356	376	396	416	436	456	476	496	516	536
19	39	59	79	99	119	139	159	179	199	219	239	319	336	357	377	397	417	437	457	477	497	517	537
20	40	60	80	100	120	140	160	180	200	220	240	320	337	358	378	398	418	438	458	478	498	518	538

FIRST CLASS
PERMIT No. 1702
CINCINNATI, OHIO

BUSINESS REPLY CARD

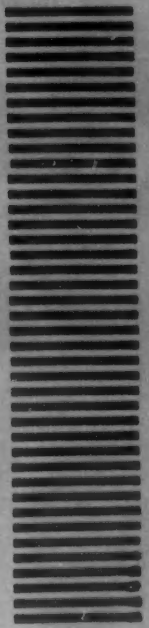
No Postage Stamp Necessary If Mailed In the United States

POSTAGE WILL BE PAID BY—

products finishing

431 MAIN ST.

CINCINNATI 2, OHIO



finishing clinic

(Suggested solutions to problems submitted by readers. Send your problems to our Editorial Staff. There is no charge.)

Inhibitor for Phosphoric Acid

Question: *We are presently using hot phosphoric acid (10 to 15%) to remove the rust from steel drums. After the drums are taken from the bath and rinsed, an immediate "flash rusting" occurs.*

Where can we get an inhibitor which could be used with the phosphoric acid to prevent rusting?

A. B.

Answer: On page 134 of the PRODUCTS FINISHING DIRECTORY a number of companies who manufacture pickling inhibitors are listed. These companies can make suggestions regarding the products they formulate for purposes such as yours.

★ ★ ★

Thick Films of Titanium

Question: *I would like to know where I might obtain more information on the process discussed in the article "Thick Films of Titanium."*

L. W. R.

Answer: The article published in PRODUCTS FINISHING entitled "Thick Films of Titanium," represents experimental work done by the Ordnance Tank Automotive Command, United States Army, in Detroit, Mich. A letter addressed to the authors at that facility would make it possible for you to secure additional information.

Manufacturers of vacuum metallizing equipment are listed on page 258 of the PRODUCTS FINISHING DIRECTORY. It is quite possible that these equipment manufacturers also have information on the vacuum deposition of titanium.

★ ★ ★

Finishing and Buffing Stainless Steel and Aluminum

Question: *We would like to obtain any information you may have available concerning satin finishing of aluminum and stainless steel and the buffing of these metals. What size buffs are used and at what speed? What type of compound is used?*

J. E. O.

Answer: You may be interested in seeing the article, "How to Polish and Buff Aluminum," published in the March, 1959 issue of PRODUCTS FINISHING. You might also find the two-part article, "Improved Buffing Techniques," (May and June, 1960) of value. We are enclosing tear sheets of these articles.

For additional information you might contact the various manufacturers of buffing and polishing equipment and buffing compounds listed in the PRODUCTS FINISHING DIRECTORY, a copy of which we are forwarding with this letter.

Cadmium Plating of Steel Parts

Question: *We are cadmium plating parts made from hot-rolled steel ¼ inch thick by 5 by 8 inches. The customer insists that we process these parts to specification ES-2163 and ES-2165. We find that the process of removing hydrogen is quite expensive. We have a plating department but have never had any experience in removing hydrogen. These parts are case hardened to 45-55 Rockwell. Can you suggest any other process that would eliminate the heating of the parts after plating?*

Deburring is also a problem. The parts are made in a punch press, then go to the milling machine for another operation. After hardening, they are carbide milled. Then we must remove the burrs. The pieces weigh about 2½ pounds and we think an ordinary tumbler would "nick" the parts, or, they would be dulled at the edges.

N. P.

Answer: These parts can certainly be deburred mechanically. A number of manufacturers of barrel finishing equipment are listed on pages 40-43 of the PRODUCTS FINISHING DIRECTORY, a copy of which we are enclosing.

The problem of cadmium plating and removing hydrogen is a little more complicated. In an article written a few years ago, Dr. Walter Beck, head of the surface treatment and corrosion branch, Metallurgical Division, Aeronautical Materials Laboratory, Naval Air Material Center, Philadelphia, Pa., stated that experimental results showed less hydrogen embrittlement if parts were plated in a cadmium fluoborate bath rather than a conventional cadmium cyanide solution. Dr. Beck might have additional comments or suggestions which would be useful to you.

For some products cadmium can be applied by vacuum metallizing rather than plating. Usually this can only be considered for expensive parts or large-volume production, because the vacuum metallizing equipment involves a substantial original investment.

★ ★ ★

Plating Magnesium

Question: *I would like to know if you have any information on a procedure for plating magnesium, including cleaning, pickling, zincating and plating prior to a deposit of electroless nickel.*

A. J. M.

Answer: We are forwarding with this letter tear sheets of several articles which have been printed in PRODUCTS FINISHING on the subject.

They are: *Factors in Successful Plating on Magnesium*, Oct., 1959; *A Practical Method for Plating on Magnesium*, Jan., 1951; *Electroplating on Magnesium*, Jan., 1952; *Commercial Electroplating on Magnesium*, Jan., 1955.

Additional information may be obtained from the companies listed in the PRODUCTS FINISHING DIRECTORY under the heading, "Plating Processes and/or Chemicals, for Magnesium," on page 199.

★ ★ ★

Ultrasonic Cleaner

Question: *Who makes a small (bench mounted) automatic cleaning machine for degreasing, pickling, rinsing and ultrasonically cleaning small machined parts?*

P. P.

Answer: With this letter we are sending you a copy of the PRODUCTS FINISHING DIRECTORY. Manufacturers of ultrasonic cleaning equipment are listed on pages 76 to 78.

Metals Memos

News about metals and metal products . . .

Precoating Process

A method of precoating metals developed by the Aeronautics Division of Chance Vought (Dallas, Texas) prevents oxidation and material loss during thermal treatment.

Patent applications have been made for the process, in which copper or aluminum is sprayed on the metal before hot forming, stress relieving, heat treating or annealing. An oxide coating forms which protects the part from changing dimensions because of metal loss.

Many close-tolerance parts previously were rejected because of metal losses of 0.002 to 0.012 inch during stress relieving. The new process cuts the loss to between 0.0001 and 0.005 inch.

The spray coating is applicable to any metal that doesn't alloy with copper or aluminum; thus it will protect exotic metals like beryllium, columbium, molybdenum, tantalum,

Electro NON-FLAMMABLE

NO CURRENT
NO HEAT Cold Stripper

Save TIME and MONEY and EFFORT

Enamels, *even high bake*, vinyls, epons, hammers, wrinkles, alkyd paints, primers —in fact—every known hard to remove finish yields to ELECTRO COLD STRIPPER in quick time—often seconds. Eliminate the problem of paint build-up on conveyor baskets, carrying racks, hooks, etc., with an ELECTRO COLD STRIPPER in-line or batch set-up.

COMPLETE DATA AND TESTING SAMPLES AVAILABLE—GRATIS

ALLIED FINISHING SPECIALTIES CO.

2643 W. GRAND AVENUE • CHICAGO 12, ILLINOIS • PHONE: AR 6-2222

For more data circle 397 on Postpaid Card

tungsten, vanadium, zirconium. Applied to titanium (see cut) it protects metal surfaces from oxide formation during thermal treatment.

The coating material contains an organic binder such as lacquer, and aluminum powder or aluminum or copper oxide. During thermal treatment the aluminum or copper decomposes into an oxide and the organic binder is burned off.

An aluminum oxide precoat protects metals up to 3722 deg. F., while a copper oxide pretreatment is good to 2255 deg. F.

Steel Stages Competitive Campaign

U. S. Steel plans an intense campaign to keep its share of the huge and increasingly competitive automotive metals market. Television, magazines and billboards will preach to the public about the strength, reliability and quality of steel, link steel with the modern Detroit creations in the consumer's mind.

The big steelmaker will tie in its consumer promotion with a campaign to tell the auto men themselves of the sales power to be gained by pushing the steel durability-quality-reliability image.

U. S. S. will take its story to the manufacturers and dealers at trade shows and automotive industry association meetings, including the Na-

There IS a difference!

When you use DRY-SYS EQUIPMENT there is over 40 years of experience built into it. That, and highest quality material and workmanship are your guarantee of

TOP PERFORMANCE—MAXIMUM LIFE

OVENS

ALL TYPES
ALL SIZES

Complete Finishing Systems

Write or Phone for Quotation

DRYING SYSTEMS CO.
DIV. THOR POWER TOOL COMPANY
1809 FOSTER AVE. • CHICAGO, ILL.

For more data circle 398 on Postpaid Card

Telephone collect for free brochure on

OXIDIZING COPPER, SILVER, BRASS, BRONZE

with

McKeon's "Liquid Sulphur"

Processes described in detail.

Sulphur Products Co., Inc.
McKeon Bldg., 621 W. Pittsburgh St., Greensburg, Pa.

For more data circle 399 on Postpaid Card

tional Automobile Show in Detroit's new Cobo Hall and the National Automotive Dealer Association Meeting in San Francisco.

Porcelain Progress

Porcelain enamels with melting points so low that they can be used on aluminum sheets and aluminized steel are described in a recent issue of *Lead*, a publication of the Lead Industries Association. Advantages: can be used on lighter stocks; form thinner coats, because they are ground more finely than usual porcelain frits; coated products have less shipping weight; desired opaqueness and finish can be obtained in a coat so thin that enameled sheet can be cut, sawed, drilled or sheared without serious spalling. Producers of the new enamels expect to find a waiting market in architectural metals, permanent outdoor signs.

Manufacturers of Vacuum Metallizing Equipment and Supplies are listed on page 258 of the 1960 PRODUCTS FINISHING DIRECTORY, the complete buyer's guide to products used in finishing metals.

NOW

...an improved bright nickel process...

SEYMOUR Hi-thro

(PATENT APPLIED FOR)

cleaner, whiter, brighter! more throwing power!

- Fast brightness-building qualities
- Broader, more uniform bright range
- Excellent levelling action
- Exceptional current density and temperature range
- Wide pH range — 2.8 to 4.5
- Economical • Excellent ductility
- Better corrosion protection
- Good tolerance to impurities
- Highly receptive to chrome plating
- No toxic or unpleasant fumes

If superb, long-lasting finishes figure in your sales and profits picture, insist on new Seymour Hi-Thro! There's no substitute!

SEE FOR YOURSELF!
Send us a sample of your product — or write for a test sample of Hi-Thro solution. Ask for Plating Accident First Aid Chart.

Electro Chemical Supplies Division
The SEYMOUR MANUFACTURING CO.
SEYMOUR, CONNECTICUT

For more data circle 400 on Postpaid Card

Free Literature

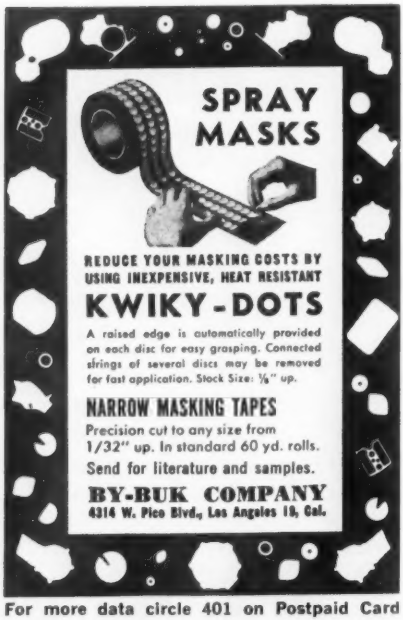
(Circle numbers on postpaid card opposite page 136 to obtain free literature)

Polishing, Buffing, Degreasing, Cleaning, Barrel Finishing, Plating, Anodizing, Phosphatizing, Baking, Vacuum Metallizing, Chromate Coating, Paint Finishing, Waste Treatment.

1. Automatic Buffing Machine
Information on a rotary automatic buffing machine which cuts floor-space requirements. Acme Manufacturing Co.

2. Ultrasonic Cleaning Systems
Literature on heavy-duty industrial ultrasonic cleaning equipment. Acoustica Associates, Inc.

3. Clear Lacquer
Information on Agateen No. 27, a crystal clear air-dry lacquer used by over 70 per cent of the watch-dial manufacturers in the U. S. Agate Lacquer Mfg. Co., Incorporated.


SPRAY MASKS
REDUCE YOUR MASKING COSTS BY USING INEXPENSIVE, HEAT RESISTANT
KWIKY-DOTS
A raised edge is automatically provided on each disc for easy grasping. Connected strings of several discs may be removed for fast application. Stock Size: ⅛" up.
NARROW MASKING TAPES
Precision cut to any size from 1/32" up. In standard 60 yd. rolls.
Send for literature and samples.
BY-BUK COMPANY
4314 W. Pico Blvd., Los Angeles 19, Cal.
For more data circle 401 on Postpaid Card

4. Chromium Chemicals
Bulletin 52 contains technical information on chromic acid and other products. Solvay Process Div., Allied Chemical Corporation.

5. Cold Stripper
Technical sheets describe Electro Cold Stripper, a non-flammable liquid paint remover that will strip air-dry and high-bake synthetic coatings, alkyds, epoxies, vinyls, phenolics and so on. This product is useful in removing specialized coatings such as photo resists, vacuum plated coatings, and is also used in conjunction with ultrasonic cleaning operations. Available in liquid form for dipping operations or in viscous form for brush application or flow on. Allied Finishing Specialties Co.

6. Powdered Chromates
Information on several powders which dissolve in water to make chromate coating solutions. Easier control, slightly different properties than liquid counterparts. Allied Research Products, Inc.

7. Guide to Chemical Treatments for Metals
An eight-page brochure describes various chemical conversion coatings for steel, aluminum, galvanized iron, zinc and cadmium plated surfaces; for corrosion resistance, paint bonding, drawing and forming, and for protection of friction surfaces. Also listed are specification chemicals for the government and its subcontractors. Amchem Products, Inc.

8. PVC Tank Lining
A six-page brochure. Amer-Plate industrial lining, a dense, flexible polyvinyl chloride sheet for lining plating, pickling and other tanks and vessels. Protects steel and concrete from strong solutions. Two types available: one for existing installations, one for new work. Amercoat Corporation.

9. Cleaners
Bulletin B-8 describes a complete line of metal cleaners. Classified according to the metal being cleaned, it gives information on operating conditions, type of material, and so on. Apothecaries Hall Div., Hubbard-Hall Chemical Co.

10. Fast-Dry Alkyd
Information on Aroplaz 6006, a fast-air-dry alkyd resin which is used in paints that set up tack free in six minutes, yet retain performance advantages of alkyds. High solids content allows one-mil-thick film to be applied in just two passes of a spray gun. Archer-Daniels-Midland Co., Resin Div.

11. Plating-Bath Purifier
Information on reducing waste of costly anodes by purifying plating baths with activated carbon so as to reduce rejects. Chemicals Div., Atlas Powder Co.

12. Horizontal Tumbler
Data sheet describes features of the new Baird Finishmaster, a horizontal barrel finishing machine. The Baird Machine Company.

13. Plastic and Rubber Coatings
Leaflet shows typical applications for Belke rubber and plastic coatings. These coatings are useful in protecting formed wire products, tool handles, chains, conveyor hooks, tote baskets, many other products. Belke Manufacturing Co.

14. Strippable Spray Booth Coating
Information on Liquid Envelope. This product is sprayed on the walls of spray booths. As overspray accumulates it can be stripped off easily in large sheets, then booth is recoated. Better Finishes & Coatings, Inc.

15. Stripe Painters
Literature describes and illustrates various types of tools for painting on stripes. Beugler Manufacturing Co.

16. Ultrasonic Parts-Cleaning Equipment
A four-page folder shows large Blakeslee ultrasonic degreasers and washers. G. S. Blakeslee & Co.

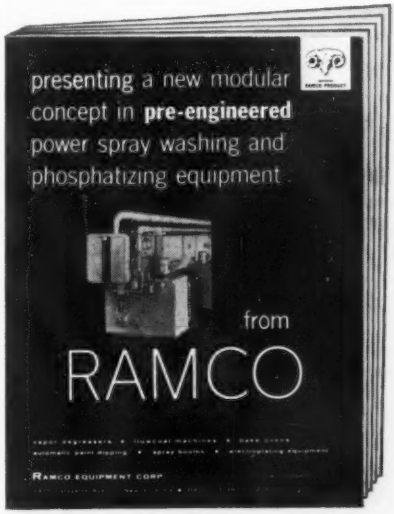
17. Tack Cloth
Literature on treated cloths that pick up dust and lint prior to paint finishing. Bond Chemical Products Co.

18. Pressure-Sensitive Tape Dispenser
Bulletin No. 525 tells about the Brady Tapematic, an electrically operated machine that will dispense masking tape, labels, pre-cut masks, automatically. W. H. Brady Co.

19. Ultrasonic Cleaning Equipment
Data sheet describes and illustrates Sonogen generators, transducers, cleaning systems. Branson Ultrasonic Corp.

another RAMCO PRODUCT

NOW from RAMCO



Send for Ramco's new bulletin NOW!

See how Ramco's standardization gives you the same unlimited flexibility as custom designed and engineered multi-stage finishing equipment at a lower capital investment . . . how Ramco's pre-engineered modules are designed to fit your present and future requirements for complete stage-by-stage, conveyorized, finishing machinery. Detailed specification and model selection charts, plus a clearly illustrated formula simplify selecting the proper units to fit your specific requirements.

Send today for your copy.

RAMCO EQUIPMENT CORP.
811 Edgewater Road • New York 59
Phone: DAyton 3-3900

For more data circle 402 on Postpaid Card

20. Metal-Processing Products
A six-page folder describes the products made by Bruce Products Corporation: buffing compounds, drawing compounds, cutting oils, non-rust oils, spray booth coatings, cleaners, polishing wheels, die-cut release agents. Bruce Products Corp.

21. Polishing and Buffing Compositions
Information on Buckingham buffing and polishing compositions. The Buckingham Products Co.

22. Masking Aids
"Time-Saving Masking Aids for Better Product Finishing" is the title of an illustrated brochure that describes masking discs, plugs, caps, corks, tape. Includes information on tape dispensers. By-Buk Co.

23. Buffs
Data sheet describes Buff Type No. 20-RD, a heavy-duty buff made of sisal twine, used for finishing stainless steel, brass and other metals. Geo. R. Churchill Co., Inc.

24. Cleaning and Finishing Machinery
A two-page bulletin describes machines, systems and processes for cleaning and finishing metal products. Cincinnati Cleaning & Finishing Machinery Co.

TRUE BRITE BRASS SOLUTION

A foolproof solution which has been in use for over 6 years in light and heavy production.

- Ready To Use — Just Add Water
- No Variance in Color
- Trouble-Free — Little Supervision Needed
- Low Cost — Additions only once a day

Available in a variety of colors. Will match your sample.

Write for technical bulletin and prices.

TRUE BRITE CHEMICAL PRODUCTS CO.
Box 31, Oakville, Conn.

For more data circle 403 on Postpaid Card

25. Finishing Continuous Coil Stock
Information on Clair Model 209 surface finishing machine, designed to be used in finishing coil stock and long sheets. Clair Manufacturing Co., Inc.

26. Electrocleaner for Brass and Nonferrous Metals
Bulletin No. 4 describes Clarco No. 40, an electrocleaner for brass and nonferrous metals. Includes directions for getting best results in both cathodic and anodic cleaning. Clarkson Laboratories, Incorporated.

27. Rhodium Plating Instructions
Handy pocket-sized booklet gives complete instructions for rhodium plating, includes data on solution preparation, work preparation, temperatures and current densities, tanks, anodes, and so on. Sigmund Cohn Mfg. Co., Inc.

28. Mask-Washing Machine
Brochure describes three machines for spray washing of paint masks. Conforming Matrix Corporation.

29. Chemically Polishing and Deburring Zinc Die Castings
Kenvert No. 55 is a powder used with nitric acid and water for chemically polishing and brightening zinc die castings and for deburring when stock-removal requirements are small. Fact Sheet No. 55 gives details. Conversion Chemical Corporation.

30. Liquid Replacement for Rochelle Salts
Details on a liquid plating additive called TPA. A liquid concentrate, it replaces Rochelle salts in bronze, brass, copper strike and copper plating solutions. Goes into solution immediately. No fuming. More uniform anode corrosion, improved efficiency. Cowles Chemical Co.

31. Bronze Powders
New color card shows 44 brilliant metallic bronze powders. Golds, coppers, aluminums, grays, browns and pastels. Includes complete directions for use and application. Crescent Bronze Powder Co.

32. Spray Nozzles
Catalog No. 33-A is designed to help the user select the proper type of spray nozzle for a particular application. Complete data on each type of nozzle, including photo, construction details, capacity, recommended uses, spray characteristics, materials available. Delavan Mfg. Company.

33. Production Ovens
Bulletin 202-1 describes ovens designed for baking painted parts loaded on shop trucks. Automatic temperature control, safety features. Includes specifications. Despatch Oven Co.

34. Paint Strippers
Information on paint strippers that remove so-called "super" finishes rapidly. Detrex Chemical Industries, Inc.

35. Tack Rags
Four-page folder describes advantages of Detroit Handy Tac Rags. Detro Sales Company, Inc.

36. Special Spray Equipment
Spray equipment required to apply Glid-Tile, a tile-like polyester finish, is listed and described in catalog sheet M-1052. The finish is said to provide appearance comparable to ceramic tile. This catalog lists the spray guns, tanks, compressors and accessories that have been tested and proved for this application. DeVilbiss Company.

37. Chromium Plating Additive
Information on Diamond CPA 1800, an additive for chromium plating baths which improves throwing power of the solution and metallurgical characteristics of the plate. Diamond Alkali Company.

38. Ovens
Literature on a complete line of baking and drying ovens. Drying Systems Co., Div. Thor Power Tool Company.

39. Ready-Mixed Gold
Information on Sea-Lac ready-mixed gold finishes for application by spray or dip. Duralac Chemical Corp.

40. Stripper
Folder describes No. 153 Stripper, a non - flammable volatile solvent-type stripper with very little toxicity. Has excellent penetrating properties, is said to be useful in removing coatings that are difficult to remove, such as melamines, epoxies, vinyls, plating rack coatings. Dytex Chemical Co.

41. Electropolishing Stainless Steel
Literature on baths for electropolishing stainless steel includes operating instructions for two of these baths. Electro-Glo Company.

42. Silver-Plating Process
Descriptive data, detailed plating procedures for depositing Silva-Bright, a mirror bright plate. American Platinum & Silver Div., Engelhard Industries, Inc.

8 FLOORS

120,000 SQUARE FEET

JAMMED

WITH THE COUNTRY'S GREATEST VALUES IN PLATING, POLISHING and SPRAY PAINTING EQUIPMENT

- Agitators
- Air Compressors
- Anodizing Equipment
- Barrel Finishing Equipment
- Belt Polishing Machines
- Blowers
- Centrifugal Dryers
- Circulating Pumps
- Degreasers
- Ducts
- Dust Collecting Systems
- Electropolishing Equipment
- Filters
- Furnaces and Ovens
- Generators
- Heaters
- Paint Spray Equipment and Accessories
- Plating Units, Semi and Full Automatics
- Rheostats and Controls
- Rectifiers: Selenium, Germanium, Silicon-Type
- Sand Blasting Equipment
- Tanks: Metal, Lead, Rubber and Plastic Lined, Wood ... AND MORE!

BOTH NEW and REBUILT ... including such well known names as ALSOP, INDUSTRIAL FILTER, BLAKESLEE CHANDEYSSON, HULL, GLO-ROD, KOCOUR, KREIDER, HVWM, LASALCO, PACKER, BELKE, UDYLITE and many others.

Since 1905, A One-Stop, From-Stock Source For New and Rebuilt Plating, Polishing and Spray Painting Equipment.

J. HOLLAND & SONS, INC. 479 KEAP ST., BROOKLYN, N.Y., U.S.A. • Telephone: EVergreen 7-3315

For more data circle 404 on Postpaid Card IJH59C

43. Tarnish and Corrosion Inhibitor for Copper and Brass
Instruction sheet for the use of Entek CU-56, a neutral liquid which is added to rinse water to prevent tarnishing, staining, green-salt formation, pit corrosion, finger marking and spotting out of copper and brass. Ideal for use in the final rinse tank following copper or brass plating. Enthone, Inc., subsidiary of American Smelting and Refining Co.

44. Copper Anode
Information on the new Asarco-Max copper anode. Federated Metals Div., American Smelting & Refining Co.

45. Sisal Buffs
Descriptive literature on Zippo Sisal Buffs, which are said to be excellent as dual-purpose (polishing and buffing) wheels. Formax Mfg. Corp.

46. Tumbling Media
Information on preformed tumbling media and abrasive products. Over 200 sizes and bonds available. Fortune Industries, Incorporated.

47. Painting Machine
Information on the new Gasway Kinetic Kurtain Coater. Gasway Corporation.

For more data circle 405 on Postpaid Card

48. Dust Collectors
Catalog DK-820 describes and illustrates the large Model DK-1055 and other dust and mist collectors. Hammond Machinery Builders, Inc.

49. Automatic Polishing Equipment
Information on automatic polishing and buffing machines. Harper Buffing Machine Co.

50. Cyanide Bright Copper
Four pages on Cynorex, a high-speed, high-efficiency bright copper plating process that produces smooth, ductile deposits using only one brightening agent—an organic brightener that is not removed by activated carbon. Includes information on current interruption (needed) anodes, agitation, equipment and so on. Harshaw Chemical Co.

51. Strip-Polishing Machine
Literature on the Hill-Acme Double-Side Strip-Grinding Machine, a large machine that simultaneously grinds both sides of 54-inch-wide strip stock. Hill-Acme Co.

52. Used Polishing Equipment
Information on used buffing and polishing machines. J. Holland & Sons, Inc.

53. Cadmium Bright Dip
Technical bulletin on Rodip CD-4 bright dip, a product formulated for use in rapid manual operations. Powder dissolves in water. No other chemicals need be added. Produces brilliant, stain-free finish. R. O. Hull & Co., Inc.

54. Tack Rags
Literature on Ideal Tack Rags, specially treated cloths that pick up dust and other particles just prior to application of an organic finish. Ideal Chemical Co.

55. Portable Plating Filter
Bulletin 118 tells about Industrial Type 118 portable filters for plating solutions. Industrial Filter & Pump Mfg. Co.

56. Finishing Systems
Information on Koch conveyorized paint finishing systems. George Koch Sons, Incorporated.

57. Plating Course
Information on a correspondence course in electroplating. Joseph B. Kushner Electroplating School.

58. Baking and Drying Equipment
Catalog No. 560 describes and illustrates various types of baking and drying equipment. The Lanly Co.

59. Multiple-Process-Cycle Plating Machine
Information on the Select-O-Matic automatic plating machine, which allows the operator to select any one of several plating cycles when he loads the machine, merely by turning a dial. Lasalco, Incorporated.

60. Plating Products and Processes
Bulletin PP-101 lists complete line of electroplating and polishing processes, equipment and supplies. Hanson-Van Winkle-Munning Co.

61. Anti-Pitting Agent
Technical Data Sheet No. 81. Three pages. A new surface active liquid, Metex Non Pitter N-17, is used in cyanide copper plating baths to overcome causes of blotchy plate and some causes of pitting, as well as to reduce fuming and dragout. MacDermid, Inc.

62. Stripping Additive
Special bulletin on Magnus Activall, an additive said to increase efficiency and effectiveness of caustic strippers. Magnus Chemical Co., Inc.

63. Space-Saving Dip-Finishing System
Data on a dip finishing machine in which the tank raises to immerse parts hanging from a conveyor. It saves space since a smaller tank can be used when space need not be provided for gradual work withdrawal. R. C. Mahon Co.

64. Solution Cooler
Bulletin AC-1 describes a packaged refrigeration system designed for cooling plating, anodizing and other corrosive solutions. No coils in tank. No external heat exchanger. Mayer Refrigerating Engineers, Incorporated.

65. Plating Processes
Folder lists and describes processes for depositing chromium, copper and bronze, tin and alloy, chromate coatings. Also includes information on plastisol coatings, specialized equipment. Metal & Thermit Corporation.

66. Vacuum Metallizing Service
Information on company's vacuum metallizing facilities. Equipment and know-how to handle production runs quickly. Metaplast Process, Inc.

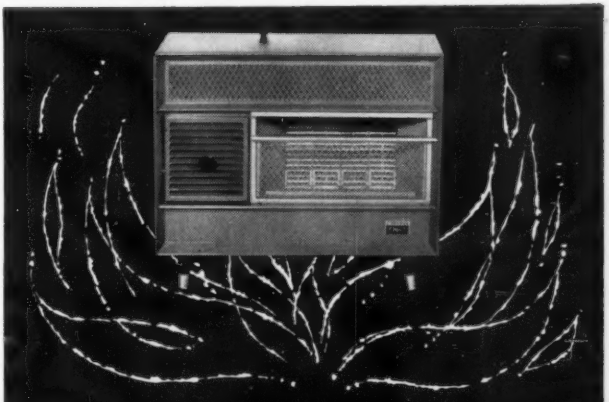
67. Finishing Systems
Bulletin shows integrated systems for applying organic coatings. Shows typical installations, describes product being

(continued)

GOLD SICON® withstands 500°F.

Gold SICON protects the grill and grill pouch of this attractive Quaker space heater under temperatures of over 500°F., without peeling, flaking, powdering or discoloring. *And it will retain its bright appearance indefinitely!* Do as Heil-Quaker did. Test SICON . . . up to 1000°F. for Sicon-Aluminum or black . . . from 500° to 650°F. in gold or other decorative colors. Write for Sicon brochure and free sample offer . . . today! Write to Dept. H-6.

SICON, protects and preserves—wherever there is heat.



Sicon® *Hi-Temperature finish*
by **MIDLAND**
Industrial Finishes Company
Waukegan, Illinois

For more data circle 406 on Postpaid Card

painted along with specifications for the system in use. Michigan Oven Co.

68. Glass Shot
Information on Microbeads Glas-Shot, microscopic glass beads for use in wet and dry blasting equipment for cleaning, polishing, peening and finishing. Microbeads, Inc.

69. Heat-Resistant Finish
Sicon, a finish that withstands high temperatures, is described in a brochure which presents a complete table of properties, characteristics and application data. Midland Industrial Finishes Company.

70. Tumbling Shape
Technical booklet on Honite Brand C-R Tumbling Shape tells how this truncated triangular pyramid reaches inaccessible workpiece areas, improves barrel finishing results. Minnesota Mining & Manufacturing Co.

71. Armored Paint Hose
Specifications, prices and other data on Synflex Hi-Temp armored hose, which is used to carry paint and other flammable fluids. Galvanized steel outer covering protects from mechanical damage, heat, reduces danger of fire. Synflex Products Div., Samuel Moore & Co.

For cleaning metal, wood and plastic surfaces before painting. Order today through your supplier.

DETRO SALES CO., INC., *Culver City, Calif.*
Standard of the Finishing Industry Since 1934
For more data circle 407 on Postpaid Card

72. Drum-Handling Tools
Literature on a line of drum-handling tools and equipment: drum wrenches, drum upenders, carts and so on. Morse Mfg. Co., Inc.

73. Plating Rack Coatings
Munray PC-7 rack coating can be applied by dipping or brushing, requires no primer or bake. Munray PC-11, a paste, adheres permanently at temperatures up to 190 deg. F., is a good insulator, has good resistance to abrasion. Complete data available. Munray Div., Textron, Incorporated.

74. Lacquer, Clear
Information on 2105 Clear Lacquer for the protection of brass, silver, bronze and copper. G. J. Nikolas & Co., Inc.

75. Cleaner for Aluminum
Complete details on Alkalume AC No. 1, a recently introduced cleaner formulated for cleaning aluminum prior to plating, anodizing, etching. Northwest Chemical Company.

76. Cleaner, Room Temperature
Oakite Service Report B-6972 describes Oakite Room-Temp Cleaner, a product that removes dirt from metal parts without heat. Operates at 70-100 deg. F. Oakite Products, Inc.

77. Media for Barrel Finishing
Bulletin No. 350. Four pages. Fused aluminum oxide chips, preformed aluminum oxide shapes such as triangles and cylinders, ceramic triangles, steel shapes. Pangborn Corporation.

78. Strippable Vinyl Coatings
Four-page folder MP-314 describes strippable vinyl coatings for protecting surfaces during processing and in storage. Includes data on typical uses, application and removal. Pennsalt Chemicals Corp.

79. Repair Kit for Tank Linings, Plating Rack Coatings
Complete description of the tools furnished in the Perma-Line tank-lining repair kit. For Koroseal, Tygon, Amerplate, Fligid, Rigidon, Vyflex, sprayed plastisol. Perma-Line Rubber Products Corporation.

80. Easily Repaired Plating Cylinders
Folder on the new Udylok-Tempron barrel plating cylinder. This cylinder has interlocking construction which makes it possible to repair and replace panels quickly in the shop. Udylite Corporation.

81. Spray Washing and Phosphatizing Equipment
Bulletin describes modular multi-stage finishing equipment, tells how these units will fit present and future requirements for complete, stage-by-stage, con-

veyorized finishing machinery. Detailed model selection and specification charts, plus clearly illustrated formula to aid the user in selecting the proper units to fit specific requirements. Ramco Equipment Corp., Div. of Randall Mfg. Co.

82. Electrostatic Spray Gun, Hand-Held
Twelve pages. "Spray Painting with the Electrostatic Hand Gun." Principles and uses of recently introduced hand-held electrostatic spray painting gun. Photos of production applications. Ransburg Electro-Coating Corp.

83. Overspray Collector
A four-page folder gives general information on RP paint arrestors, dry filters that remove overspray paint from exhaust air. Includes installation instructions, performance data, construction details. Research Products Corporation.

84. Oscillating Belt Grinder
Folder describes features of the Tri-Matic oscillating belt grinder. Sales Service Mfg. Co.

85. Pipeline Strainers
Sarco Bulletin No. 1210. Describes four basic types of pipeline strainers for condensate. Details construction and operating features of strainers designed to protect steam traps, pumps, control valves, compressors and other equipment from dirt, scale, metal chips, etc. Sarco Co., Inc.

86. Filter-Pump Selection Guide
Bulletin M-1. Eight pages. Lists many electroplating and industrial solutions and the filter pumps recommended for each. Data and facts about components and materials of construction. Illustrations and specifications for 20 representative models, ranging in capacity from 50 to 2700 g.p.h. Sethco Mfg. Corp.

87. Bright Nickel Process
Technical brochure (10 pages) describes the Sey-Lite low-stress bright nickel process. General information on the solution and deposits, make up solutions, consumption of replenishment solutions, analysis of solution, purification and treatment, causes of and cure for troubles, and so on. Seymour Mfg. Co.

88. Washing Machine
Bulletin 107 describes the Vibra-Washer, an automatic parts washer and metal conditioning machine which employs a vibrating work carrier that automati-

(continued)

PAINT STRIPPER

THE NEW MIRACLE

STRIPEX #153

NO HEAT NECESSARY!

A mild steel tank is all that is required. Strips All Types of Baked Enamels.
Some Baked Coatings are Stripped Clean in a matter of Seconds.
Excellent for stripping vacuum metallizing racks.

DYTEX

DYTEX CHEMICAL COMPANY

Chemical Specialties

PROVIDENCE 3, Rhode Island

For more data circle 408 on Postpaid Card

cally conveys parts through cleaning or conditioning baths. Simplicity Engineering Co.

89. Industrial Dust Control
A 36-page catalog (Bulletin 104) describes a complete line of Sly dust filters. W. W. Sly Manufacturing Co.

90. Soak Cleaner
Information on a controlled-pH, high-detergency soak cleaner for applications where space is limited for precleaning. Solventol Chemical Products, Inc.

91. Hot-Spray Pump
Leaflet on the Spartan pump, which is designed to serve a single or dual spray gun operation with hose line lengths up to 75 feet. Maintains temperature at the gun with full-rated hose length. Ideal for large spray booths or open areas. Particularly suited for use with abrasive-pigmented materials. Spee-Flo Co.

92. Complete Finishing Systems
Literature on Spra-Con complete finishing systems for applying organic coatings. Data on components such as washers, ovens, flow-coat machines, conveyors, air make-up systems. The Spra-Con Company.

93. Square-Spray Nozzle
Literature on a spray nozzle which produces a wide, square spray. Designed for use where space is limited. Provides coverage in a short distance. Spraying Systems Co.

94. Spray-Nozzle Catalog
Nozzle-selection tables, descriptions of specialized types of nozzles, exclusive designs, plus 32 pages of flow charts, spray patterns, spray characteristics, and basic engineering data. Wm. Steinen Mfg. Co., Industrial Nozzle Div.

95. Coloring Compound
Information on Stevens 27L liquid tripoli coloring compound, which helps to produce high color, is easily cleaned off before finishing. Frederic B. Stevens, Inc.

NEW ENGLAND SPEAKS

"I believe every man, young or old, regardless of level, should take this course. The "Know-How" hits points of interest that years of experience will not touch," writes New England plater, H. S. Cummings. You can't beat ELECTROPLATING KNOW HOW! Subscribe today! Dr. Joseph B. Kushner, Electroplating School, Box 2066-P, Evansville 14, Ind.

For more data circle 409 on Postpaid Card

96. Hydrastat Painting Equipment
Illustrated literature on the Alemite Hydrastat System, which is said to make possible 80 per cent faster painting and 40 per cent greater coverage per gallon. Atomizes paint by hydraulic pressure, uses no air for atomization, reduces overspray. Alemite Div., Stewart-Warner Corp.

97. Stripping Copper
A 10-page booklet describes Liquid Sulphur, tells exactly how to use this material for removing deposits of copper. Sulphur Products Co., Inc.

98. Sanders, Air-Operated
Data on portable air-operated sanding machines. Sundstrand Machine Tool Div. of Sundstrand Corp.

99. Vacuum Metallizing Coils
New catalog lists 164 sizes and shapes of vacuum metallizing coils, tells about typical applications for each of them. Sylvania Electric Products, Inc., Chemical & Metallurgical Div.

100. Etch Primer
Data on Gripalloy, an etch primer available in black and colors. Used as primer or finish coat. Tenax Finishing Products Company.

101. Solid and Clad Precious Metals
Bulletin GP-22. Six pages. Gold, silver and platinum-group metals in solid, clad and cored mill forms. General Plate Products Group, Texas Instruments, Inc., Metals & Controls Div.

102. Cob Grit for Blasting, Tumbling
Information on corn cob grits that are used as tumbling media and in blast cleaning. Ti-Co Industries, Inc.

103. Titanium Anodizing Cylinder
Data sheet describes and illustrates an all-titanium anodizing cylinder that is useful in bulk processing of bolts, rivets, screws. Requires no stripping, resists acids. Titanium Products Corporation.

104. Hammer Finish
Information on Tousey Hammercote, a hammer-type finish said to produce uniform patterns, hard, mar-proof films. Tousey Varnish Co.

105. Brass Plating Solution
Technical bulletin on True Brite brass solution, which is available in a variety of colors. True Brite Chemical Products Company.

106. Cleaner-Phosphatizer
Bulletin 108-26 describes Turco Paintite, a product for use in spray washers. Cleans, produces light phosphate coating on ferrous metals, galvanizing, zinc plate, zinc die castings, cadmium plate. Turco Products Inc.

107. New Scale for Thickness Tester
Bulletin No. 1, a description of a scale which permits Dermitron Non-Destructive Coating Thickness Tester Model D-2 to be used for measurement of all non-conductive films, such as anodizing, hardcoat, paint, primer, ceramic coatings, etc., without referring to calibration curves. Unit Process Assemblies, Incorporated.

108. Drum Rollers
Information on the U. S. line of adjustable drum rollers, which mix, blend and tumble materials right in the original containers or in various sizes of drums. Made of conductive neoprene rubber to eliminate static electricity. Process Equipment Div., U. S. Stoneware.

109. Copper Anodes
Information on "Phosphor-Brite" rolled copper anodes for acid copper plating baths. Univertical Corp.

110. Acrylic Coatings
Performance and application information on acrylic-based coatings. The Varnish Products Co.

111. Rack Trucks
Information on rack trucks designed for batch-type baking operations. Wilder Mfg. Co., Inc.

112. Emulsion Cleaner
Nordall emulsion cleaner is useful in spray cleaning steel, cast iron and other metals. Cleaned steel is protected for up to six weeks in plant atmospheres. Details available. Wyandotte Chemicals Corporation, J. B. Ford Div.

113. Baking and Drying Ovens
Bulletin 157 describes line of batch and conveyor-type baking ovens for heating up to 1,000 deg. F. Young Brothers Co.

114. Electroplating Filters
Technical data on eight standard side-cleaning Udylite Series 60 filters. High-area, low-pressure portable filters remove contamination from nickel, copper, cadmium and zinc plating solutions. Capacities: 200 to 10,000 g.p.h. Udylite Corporation.

115. Contact Wheels
Catalog No. CWIR659 gives data on the selection and application of Cosmo Rubber contact wheels for abrasive belt grinding and finishing. Includes section on industrial rollers. Sections devoted to effect of pressure on contact wheel area, sizes and types of wheels required for various jobs, sanding pads, expanding wheels. Cosmo Wheels, Inc.

116. Degreaser Lid
Information on the Baron Econ-O-Lid, a roll-type cover which fits all vapor degreasers, is easy to roll open or shut. Baron Industries.

117. Polishing and Finishing Heavy Chromium Plate
Data sheet describes various abrasive finishing methods for producing bright, satin or butler finishes on heavy chrome plate. Includes data on compounds, buffs, buff speeds. Lea Mfg. Co.

118. Degreasers
Catalog describes laboratory, two-dip, three-dip, vapor-spray, barrel-type automatic, and semi-automatic degreasers. Mechanical Process Co., Inc.

119. Paint-Bonding Products
Complete line of products for preparing metal surfaces to improve paint-bonding properties is described in Brochure 57-147. Neilson Chemical Co.

120. Generator Brushes
Equaload Generator Brush Bulletin illustrates and describes how the newly introduced coated equaload Brush reduces commutator wear and threading. Hanson-Van Winkle-Munning Co.

FUNCTIONAL FINISHES!!

If you require your coatings to accomplish some specific task — something beyond mere ornamental appearance or average longevity—

Try Us!

We make ACRYLIC, ALKYD, CELLULOSIC and VINYLOID coatings for a very wide range of specialized industrial applications.

The Varnish Products Co.
5204 Harvard Avenue
Cleveland, Ohio

For more data circle 410 on Postpaid Card

121. Barrel Finishing Machines
New catalog illustrates and gives complete details on all Rampe's barrel finishing machines, including 30 X 32, Rampe's newest, heavy-duty machine. Rampe Mfg. Co.

122. Finishing Systems
New 4-page catalog describes machinery and systems for metal surface processing (cleaning, washing, rinsing, drying, spraying, flow and dip coating). Includes information on drum-type machines, conveyor machines and systems, combination drum and conveyor machines, and complete automatic finishing systems. Ransohoff/Roto-Finish.

123. Acid Gold Plating Process
Bulletin FTC-G on the Karatclad gold plating process for decorative applications. Includes copy of new FTC ruling covering gold plating. Sel-Rex Corporation.

124. Metal Salts
Information on a line of inorganic salts —cobalts, nickel, copper, zirconium, rare earths, thorium products, other salts. Vitro Chemical Co., a Subsidiary of Vitro Corporation of America.

125. Airless Spray Process
Bulletin answers questions such as "How does Hydra-Spray increase savings?" "What makes these savings possible?" "What is Hydra-Spray and how does it work?" Gray Company, Inc.

158. Tumbling and Burnishing Barrels
Catalog on Reliance tumbling and burnishing barrels. Describes and illustrates many different types. Chas. F. L'Hommedieu & Sons Co.

159. Electric Infrared Ovens
Catalog BRG100 tells about advantages of electric infrared heat for baking ovens, lists typical applications, describes and illustrates heat sources, modular sections. Includes specifications. Radcor, Inc.

Classified Advertising

Space on this page is available for advertising of Services, Employment, Used Machinery & Equipment, Etc. Sold in inch units, one col. wide. Rate: $25 per col-inch.

PRODUCTS FINISHING **431 Main St.** **Cincinnati 2, Ohio**

OUTSTANDING OPPORTUNITY FOR AGGRESSIVE SALESMEN experienced in Industrial Finishing Equipment. The Spee-Flo Manufacturing Corp. has territories available in mid-Atlantic and southern Ohio area to represent factory in the sale of Hot Spray, Airless and general line of spray equipment. Your inquiry treated in confidence.

Write Sales Manager,

SPEE-FLO COMPANY
6614 Harrisburg, Houston 11, Texas

SOUTH FLORIDA TEST SERVICE, INC.
Testing—Inspection—Research—Engineers
Consultants and specialists in corrosion, weathering and sunlight testing.
4301 N. W. 7th St. • Miami 44, Florida

SPECIALTY FINISHING OF FLAT SURFACES
Sub-contracting work desired by established manufacturer with 6,000,000 square feet annual capacity. Technical help available. Improved automated finishing lines for flat surface areas up to 4' x 16', maximum thickness up to 2". Short cycle heat system application of epoxy, melamine, specialty paint or finishing processes to fiber board, wood, hardboard, cement asbestos and metal. WEBER COSTELLO COMPANY, 1256 McKinley St., Chicago Heights, Ill.

PAINT FOREMAN WANTED
Supervise job shop metal cleaning and painting; doing appliance quality work. Must know everything about metal preparation, scientific paint thinning and baking. Ideal supervisory position. Send resume to:
REX METAL-CRAFT, INC.
1717 Gent Avenue Indianapolis 2, Indiana

news of the finishing industry

company news
new positions
new plants
meetings

NEW PLANTS

Pittsburgh Plate To Expand Springdale Paint Laboratories

Pittsburgh Plate Glass Company will add a new wing to the Paint and Brush Division's Research and Development Center at Springdale, Pa.

The new unit will contain 18,000 square feet of floor space. It will house the Paint Division's trade sales development laboratory operations currently located at Milwaukee, Wisconsin.

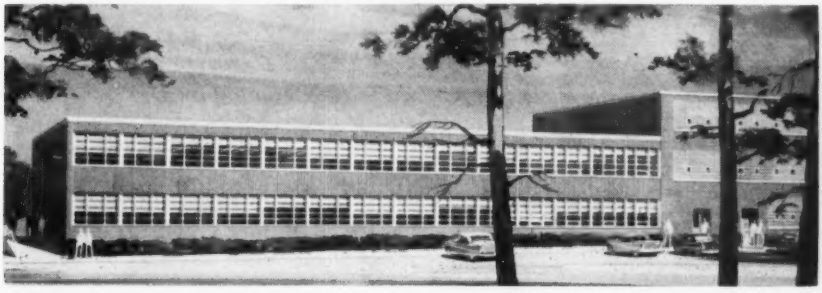
Preliminary construction will begin immediately. The scheduled completion date is December 15, 1960. At that time, scientists and technicians currently involved in trade sales paint development at Milwaukee will be transferred to the Springdale Research and Development Center, near the company's Pittsburgh headquarters. This group is headed by Dr. P. G. Boermans.

Polymer Corporation Breaks Ground for Chicago Coating Plant

Ground has been broken for a new Polymer Corporation plant in Northwestern Industrial Park, Rolling Meadows, Chicago.

The principal operations at the facility will be plastic coating of metal products by the Whirlclad Coating System and demonstration of the technique to prospective licensees who desire to coat by the patented process in their own plants. The system in-

(continued)



New Wing for Paint and Brush Division of Pittsburgh Plate Glass Company

volves the dipping of preheated metal parts into fluidized plastic powders which fuse to form a coating.

The Polymer Corporation of Pennsylvania, Polymer's national subsidiary for semi-finished plastic shapes, will move its offices and warehouse when the building is completed.

Metal & Thermit Opens New Plating Lab

Metal & Thermit Corporation now has a new, larger laboratory for electroplating analytical and technical services in Detroit.

The extensive electroplating laboratory houses such new equipment as a recording spectrophotometer, colorimeter, photomicroscope (up to 1200X magnification), micro-metallograph, electronic thickness gage, micro-hardness tester, and fatigue tester.

Ronald Dow is now responsible for both customer service and the new laboratory. Peter G. Kendi is the laboratory supervisor.

Ross Engineering Opens New Sales Office

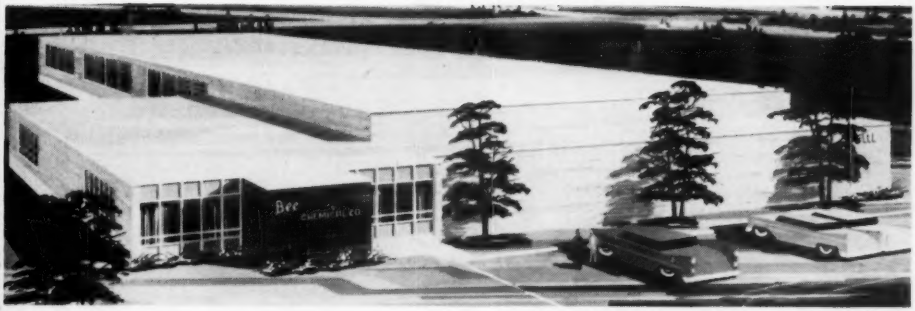
J. O. Ross Engineering Division of Midland-Ross Corporation recently announced plans for the opening of a new sales office in Mobile, Alabama.

To head the new office, Ross has chosen R. C. MacDuffee, a salesman now in the Mt. Prospect, Ill. office.

Bee Chemical Company Moves to New Plant

Bee Chemical recently moved into

Metal & Thermit Corporation's recently expanded electroplating analytical and technical services laboratory in Detroit. In a year's time thousands of plating solutions are analyzed to determine action required to produce better plating results.



Bee Chemical Co. recently moved from Chicago to this new plant in Lansing, Illinois

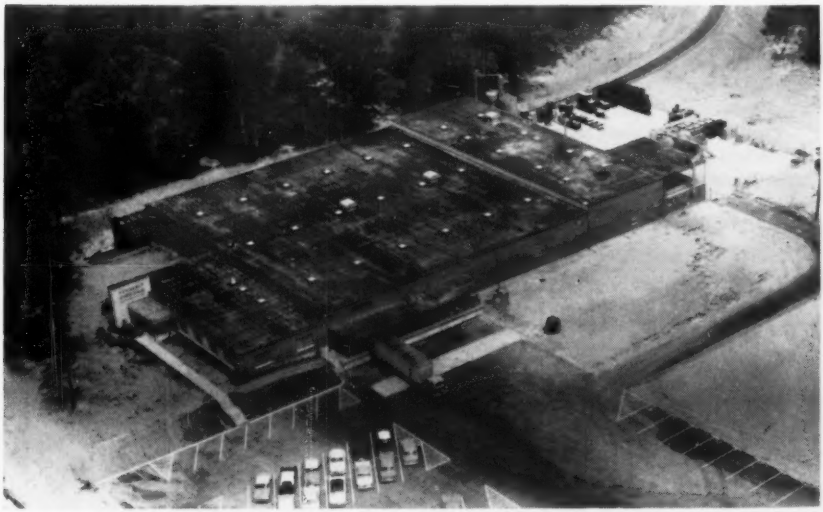
its new plant at 2700 E. 170th St., in Lansing, Ill., a suburb of Chicago. M. A. Self, president, reports that the new building will house administrative and sales offices as well as research and manufacturing facilities.

Bee Chemical makes plastisols and other organic coatings, specializing in coatings for plastics and for use prior to and after vacuum metallizing.

New Chemical Specialties Plant To Serve Southeast Put into Production by Pennsalt Chemicals

Production and distribution of a diversified line of chemical specialties has begun by Pennsalt Chemicals Corporation at a new 34,000 square-foot plant recently completed in Atlanta, Georgia. The new plant will serve the

(continued)



Aerial view of Pennsalt Chemicals' new chemical specialties plant near Atlanta, Georgia.

Southeast with Pennsalt's full line of products.

Metal producers and fabricators in the Southeast will be served by a complete line of phosphatizing, cleaning and drawing lubricants as well as Pennsalt's metal processing machinery and technical service.

Area manager who will be responsible for all phases of the new plant's operation is Robert F. Ragsdale. He was previously area production manager for the Chicago Heights, Ill. and Delaware, Ohio plants.

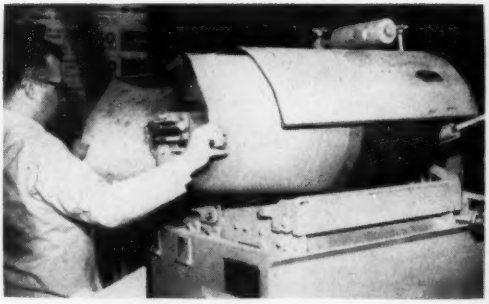
Larry J. Browder, who has served as a special project supervisor and process foreman at the Cornwells Heights, Pa. Chemical Specialties plant, has been appointed plant supervisor. Financial manager is John D. Clinkscales.

District sales manager for metal processing products and machinery will be Cooper Schley.

Chicago Rubber Company Expands Facilities

Expansion of manufacturing facilities that will include a modern research laboratory and technical center is nearing completion at Chicago Rubber Company, Inc., Waukegan, Ill.

A leading manufacturer of rubber-covered industrial rolls, the company



Abrasive belt being slipped onto rubber-covered roll made by Chicago Rubber Co.

is improving the facilities for production of rolls and contact wheels.

Chicago Rubber manufactures the patented Cosmo Rubber Contact Wheel.

COMPANIES

Rockwell Opens Coating Division

W. S. Rockwell Company, Fairfield, Conn., has established a Plastics Coating Division. The new division will apply a variety of thermoplastic finishes on metal objects for protective and decorative purposes.

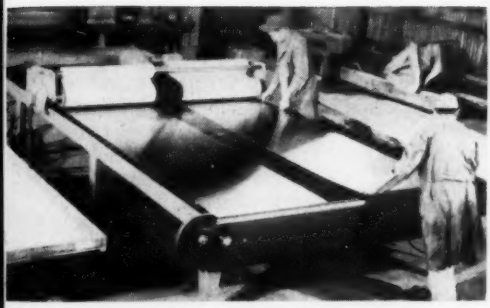
Facilities have been set up for sand blasting and cleaning of metal surfaces, preheating the objects, application of plastic coating by the fluidized bed process and subsequent heating or curing.

The shop is equipped to apply such materials as chlorinated polyether, polyethylene, P.V.C., epoxies, cellulose or nylon. Typical of the parts to be finished are valve bodies, pump parts, fan blades, magnetic flow tubes. The finish is smooth, hard, uniform and homogeneous.

Giant Tape Applicator Built for Kaiser Aluminum

A giant automatic machine—believed to be the largest tape applicator of

IDEAL TACK RAGS
FOR A PERFECT FINISH
Bulk, Bagged, 72 yd. pieces and continuous lengths.
Immediate Delivery
IDEAL CHEMICAL COMPANY
1499 DEAN DRIVE • SOUTH EUCLID 21, OHIO
For more data circle 411 on Postpaid Card



Workers position aluminum sheets in front of the rollers of new giant tape machine at Kaiser Aluminum. (Photo courtesy Minnesota Mining & Mfg. Co., St. Paul, Minnesota.)

its kind—has been built to apply protective pressure-sensitive tape to large surfaces of flat sheets and plate.

Built by Westoak Machine Corp., Oakland, Calif., the new machine is 7 feet wide and 20 feet long and was manufactured for Kaiser Aluminum & Chemical Corp. It coats aluminum sheets—up to 84 inches wide and 200 inches long, can completely cover such a sheet with tape in only 17 seconds.

Tape used is "Scotch" brand No. 343 protective tape, which consists of a thin, smooth and pliable paper backing combined with an elastic film-like adhesive. Manufactured by Minnesota Mining and Manufacturing Co. (3M), it is available in exceptionally wide widths and adheres instantly when rolled on by the machine.

The patented machine is equipped with two knife blades which cut the tape to desired measurement. It has a maximum coating speed of 50 feet of tape per minute from two tape roll shafts which unreel the tape simultaneously over the single neoprene-coated pressure roll.

The tape is applied with no wrinkles or other blemishes and positive alignment of sheet material is provided with placement guides for correct tape coverage.

MacLeod Adds Ovens to Its Line

The MacLeod Company, Cincinnati, Ohio manufacturer of metal cleaning and finishing equipment, recently added industrial ovens to its line. Included are batch, monorail, and conveyor types—for water dry-off, paint baking, deyhdrating, and stress relief to 800 deg. F.

Seymour Patents CuSol Process

The CuSol Process for plating copper has been patented by Seymour Manufacturing Co., Seymour, Conn.

The CuSol Process is based on certain additives for copper plating baths. These additives improve covering power, smoothness and ductility, Seymour reports.

Throwing power of the CuSol baths is excellent. The additives used are stable and the solution remains free of break-down products.

DeVilbiss Metal Fabricators Becomes Division

The DeVilbiss Company has changed the status of its wholly owned subsidiary, DeVilbiss Metal Fabricators Company, to a division of the company. New name: The DeVilbiss Company, Metal Fabricators Division.

Operations will continue unchanged at the division's Detroit plant. Fabricated metal products, industrial parts washers and ovens, dip and flow coaters, air replacement and other major

(continued)

INDUSTRIAL ABRASIVE COB PRODUCTS

- **COB GRITS (Blasting)**
- **COB FLOUR (Foundry)**
- **COB MEAL (Tumbling & Drying)**

For Plastic and Metal Finishing

TI-CO INDUSTRIES, INC.

P. O. BOX 185 • TIPTON, INDIANA

Phone or Telegraph: FEderal 2-5942, Elwood, Indiana

For more data circle 412 on Postpaid Card

components of the DeVilbiss line of finishing systems and equipment are produced here.

T. Kenneth McGuire, vice president of DeVilbiss, is in charge of the operations of the division.

Seminar on Rhodium Held for Electroplaters

Over seventy electroplaters and jewelry manufacturers from Massachusetts and Rhode Island recently attended a half-day rhodium seminar at General Plate Products group of Texas Instruments Incorporated, Metals & Controls Division, Attleboro, Mass. The seminar was sponsored jointly by Texas Instruments, producer of rhodium plating solutions and clad metal expanded mesh anodes for rhodium electroplating, and Reynolds & Markman, Inc., Attleboro, Mass., distributor of chemical and electroplating supplies.

The meeting included a tour through the Texas Instruments platinum products manufacturing area and the platinum-group metals refinery.

Seminar participants were welcomed to the Attleboro, Massachusetts plant by R. A. Beers, Metals & Controls Division manager of personnel. Keynoting the meeting was William Reynolds, president of Reynolds & Markman.

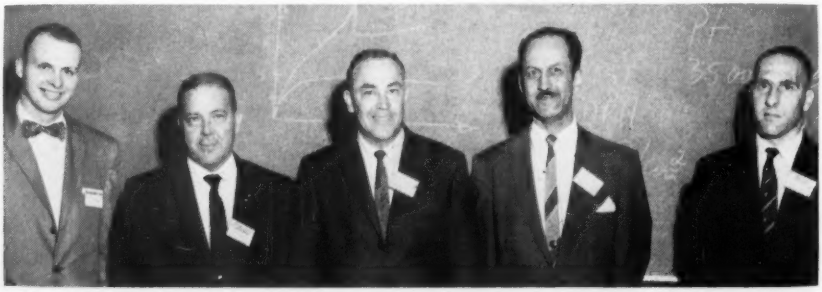
Five technical sessions followed. The first was a demonstration presented by Gail Gustafson, production manager of Blackstone Corporation, Jamestown, New York, on ultrasonic cleaning of metal surfaces.

Following the cleaning demonstration, John Masse, chemical engineer with Imperial Chemical Industries Ltd., England, spoke on new techniques used to dry electroplated parts.

The third session was devoted to a discussion of rhodium plating defects, their causes and cures. The speaker was J. Newton Perham, in charge of customer service to rhodium electroplaters at General Plate Products group.

Following this, Paul Williams, foreman of the Texas Instruments refinery spoke to the group on rhodium refining techniques.

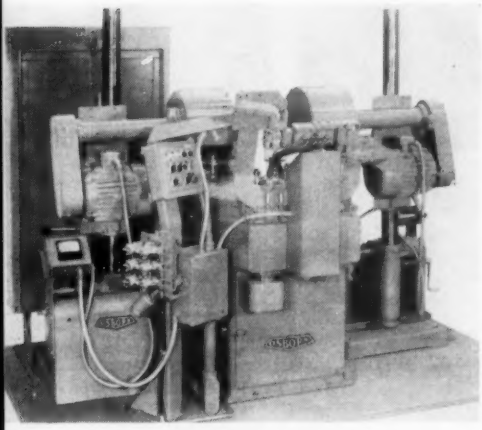
The final session on metal cladding techniques, with special reference to the platinum-group metals, was conducted by Jobst Hafner, chief processing engineer for precious metals at General Plate Products group.



Speakers at the rhodium seminar held at Texas Instruments were (left to right): Gail Gustafson, Blackstone Corp., Jamestown, N. Y.; William Reynolds, president of Reynolds & Markman, Attleboro; J. Newton Perham, Texas Instruments; Paul Williams, Texas Instruments; and John Masse, Imperial Chemical Industries Ltd., England.

Osborn Manufacturing To Demonstrate Finishing Machinery "Building Block" Concept at Chicago's Production Engineering Show

Metal finishing machinery designed for use with manual, semi-automatic or completely automatic operations will be the keynote of the Osborn Manufacturing Company exhibit at the Production Engineering Show in Chicago, September 6 through 16.



Osborn 5630-2M1A Automatic Machine

The Cleveland manufacturer of brushes and brushing machines will exhibit its "Building Block" concept as applied to metal finishing machines. Basic machinery components, completely independent and self-contained, are integrated to make a complete machine tailored to the specific needs of each manufacturer.

NEW POSITIONS

Edwin C. Elliott joined **Enthone, Inc.**, New Haven, Connecticut, subsidiary of American Smelting and Refining Company, as a sales engineer. He will represent Enthone in the Rochester-Syracuse-Utica area of central New York State.

Donald L. Miles

Edwin C. Elliott

Metasurf Corporation has appointed **Donald L. Miles** vice president and sales manager. He takes the place of **J. M. O'Brien,** who becomes executive vice president.

★ ★ ★

John M. French joined **Pennsalt Chemicals Corporation** as manager of development for the company's Corrosion Engineering Products Department. With headquarters in Natrona, Pa., he will be responsible for development of new products in Pennsalt's line of corrosion resistant mortars and protective coatings and plastics for construction and maintenance.

BRUKO . . The only company in America with a full line of processing materials. Order your specially formulated products for cleaning, buffing, and polishing from

BRUCE PRODUCTS COMPANY

HOWELL • MICHIGAN

For more data circle 413 on Postpaid Card

Wyandotte Chemicals' J. B. Ford Division has appointed **Edward J. Lynch** sales manager of its Minneapolis District and **Gail A. Smith** manager, Food Industries Service.

Alexander Wilson appointed regional manager for **Parker Rust Proof Company's** western regional office, Chicago. Parker makes metal-treating chemicals.

Edward J. Lynch

Gail A. Smith

Daniel B. Lamb

Al Wilson

Mr. Lynch was a field sales manager of the Division's Cincinnati District prior to his latest assignment.

Gail Smith had been Minneapolis manager. He now transfers to company headquarters at Wyandotte, Michigan.

★ ★ ★

Robert G. Dow appointed field salesman for the Chicago branch sales office of **Diamond Alkali Company.**

Mr. Dow succeeds H. T. Woollacott, a 40-year Diamond veteran who died March 31, 1960.

★ ★ ★

Evan F. R. Quarton has been appointed assistant chemist on the laboratory staff of **The Lea Manufacturing Company,** Waterbury, Conn.

Daniel B. Lamb appointed Detroit division manager for **Oakite Products, Inc.,** New York manufacturer of chemicals for cleaning, sanitizing, and metal treating. He replaces **Thomas R. Smith,** who is retiring after nineteen years as head of the Detroit division.

★ ★ ★

Pennsalt Chemicals Corporation has named **Douglas F. Woolley, Jr.** manager of the newly-created Eastern Seaboard Region for the Corrosion Engineering Products Department.

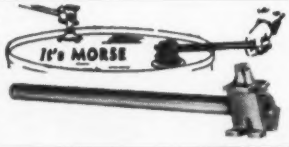
★ ★ ★

R. A. Emmett, Jr., vice president of **Detrex Chemical Industries, Inc.,** Detroit, has been placed in charge of all

Send NOW for this FIT-ALL

DRUM PLUG WRENCH

Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs. Order 1 or more today!



THOUSANDS IN USE saving time, labor, accidents!

SATISFACTION GUARANTEED..... $4.10

Non-sparking type.....$6.30

Plus Parcel Post

MORSE MFG. CO., Inc.

762 W. Manlius St., E. Syracuse, N.Y.

For more data circle 414 on Postpaid Card

Detrex manufacturing—chemical and equipment.

Mr. Emmett will also direct the activities of the Detrex Laboratory and Research Center in Detroit.

Oakite Products, Inc. has assigned three representatives to the company's technical field service staff. The firm manufactures chemicals for industrial cleaning and metal treatment.

R. A. Emmett, Jr.

Paul Goldner

George E. Park

James D. Enstad

J. O. Ross Engineering Division of Midland-Ross Corporation recently appointed **Paul Goldner** district manager of its Seattle office.

★ ★ ★

J. A. Hughes and **W. H. McConnell** elected senior vice presidents of **Diamond Alkali Co.**, Cleveland, Ohio.

Diamond also announced that **J. W. Mantz** has been appointed director of trade development, a new position; **A. B. Tillman** will be general manager-Soda Products-Chrome Division; **F. W. Jarvis** will be general manager of the Electro Chemicals Division.

★ ★ ★

Horace W. Hooker appointed manager of licensing for **Hooker Chemical Corporation**, New York, N. Y.

★ ★ ★

W. Bonfich named technical director for **Universal Paint & Varnish, Inc.**, Bedford, Ohio, manufacturer of Uni-Clad coatings for metals and plastics, and Uni-Mulsion water-base paints.

Lon E. Welch, formerly a representative in Akron Ohio, has been transferred to Kokomo, Indiana, where he replaces **Daniel B. Lamb**, recently appointed manager of the company's Detroit division. **George E. Park** goes to the Springfield, Missouri territory, and **James D. Enstad** has been sent to St. Paul.

Lon E. Welch

"GRIPALLOY"

. . . Attractive satin sheen ETCHING PRIMER in black and colors . . . Often used as finish coat . . . Air dries in minutes . . .

. . . Amazing tight adhesion to 25 different metals as reported by a large electrical manufacturer.

. . . Excellent resistance to Salt Spray, Gasoline, and Solvents . . .

TENAX, Newark, N. J.
Lacquers—Enamels
Synthetics—Vinyls

For more data circle 415 on Postpaid Card

Albert Rozensky has joined the Corrosion Engineering Products Dept. of **Pennsalt Chemicals Corporation,** Natrona, Pa. He will be a technical service engineer.

★ ★ ★

Andrew B. Holmstrom retired as vice president of **Norton Co.,** Worcester, Mass. maker of abrasive products.

★ ★ ★

Thomas W. Gulley, Jr. elected president of **The Singleton Company,** Cleveland producer of finishing equipment. Other officers elected are Thomas R. Gill, vice president and treasurer, and Kenneth Kolinski, secretary.

All equipment manufactured by Singleton will continue to be marketed exclusively through The G. S. Equipment Company and its national distributor organization.

F. C. Bissell

T. W. Gulley, Jr.

Bias Buff and Wheel Div. of Riegel Textile Corp. has appointed **F. C. Bissell** to sell the buff maker's products in the Grand Rapids-Saginaw Valley area.

★ ★ ★

Robert S. Baker appointed vice president-manufacturing, **The American Brass Co.,** Waterbury, Conn. He succeeds **Sydney H. Wardell,** retired.

MEETINGS

Boston Branch A.E.S. Annual in September

The Boston Branch will open the season for annual meetings and technical sessions this year with its 24th Annual Banquet and Technical Session, to be held at the Statler-Hilton on September 17.

The technical program is as follows:

Cleveland F. Nixon

James D. Thomas

Clyde Kelly

1. *A.E.S. Research,* by James D. Thomas, General Motors Research, Detroit.
2. *Research Project No. 18 (Mechanical Finishing of Metal Surfaces),* by Clyde Kelly, president, American Plating Co., Des Moines, Iowa.
3. *Research Project No. 15 (Accelerated Corrosion Tests for the Performance of Plated Coatings),* by Cleveland F. Nixon, head of Electrochemistry Dept., General Motors Research Staff, Detroit.

(continued)

The Metal Finishing Suppliers' Association, Inc., is an organization of manufacturers and distributors of equipment and supplies used in the metal products finishing industry. It was organized in Milwaukee at the 1924 A.E.S. Convention as the International Fellowship Club. In 1951 it was formally incorporated under its present name. It is now in its 37th year of service to the industry and to the American Electroplaters' Society.

Originated to further hospitality and friendship among suppliers, M.F.S.A. has extended its efforts to include A.E.S. members and branches. M.F.S.A., as an organization, and through its individual members, is an important factor in the success of Branch, Regional, and Annual A.E.S. Meetings. M.F.S.A. and its members support many functions and activities of the A.E.S.

At A.E.S. Annual Conventions M.F.S.A. is host to the entire A.E.S. Convention at the M.F.S.A. Ball, and sponsors a reception and an Annual Golf Tournament.

For full information about M.F.S.A. aims and objectives, write to:

Officers and Trustees, Metal Finishing Suppliers' Association, Inc.

R. F. LEDFORD
President
with CHEMRAY CORPORATION
Westchester, Ill.

H. L. KELLNER
3rd Vice President
with THE LEA MANUFACTURING CO.
Waterbury, Conn.

E. L. COMBS
with DIAMOND ALKALI COMPANY
Cleveland, Ohio

H. J. McCRACKEN
with NORTHWEST CHEMICAL CO.
Detroit, Mich.

F. P. GREEN
1st Vice President
with CROWN RHEOSTAT & SUPPLY CO.
Elk Grove Village, Ill.

J. E. TRUMBOUR
with METALS & PLASTICS PUBLICATIONS
Westwood, N. J.

L. A. DAVIES
with DAVIES SUPPLY & MANUFACTURING CO.
St. Louis, Mo.

R. M. NORTON
with HANSON-VAN WINKLE-MUNNING CO.
Matawan, N. J.

MANSON GLOVER
Acting Executive Secretary
with GLOVER COATING CO.
Malden, Mass.

J. G. CARRIQUE
2nd Vice President
with ALLOYCRAFT, LIMITED
Montreal, Quebec

E. W. COUCH
Past President
with THE LEA MANUFACTURING CO.
Waterbury, Conn.

A. B. HOEFER
with FREDERIC B. STEVENS, INC.
Detroit, Mich.

E. A. BLOUNT
Treasurer
with PRODUCTS FINISHING
Cincinnati, Ohio

This message presented with the compliments of
PRODUCTS FINISHING.

Jack Adams, instructor of Binks Manufacturing Company's spray painting school, explains workings of spray gun to recent class of students interested in spray painting.

The first paper will be given at 2:00 P.M.

Ladies will preview a new Fall stage show in its pre-Broadway run while the technical sessions are underway.

Roast beef dinner will be served at 7 P.M., followed by door prizes, entertainment and dancing.

General chairman of this annual meeting is George J. Marotta. His committee includes Robert L. Pierce, educational session; June Marotta, ladies' program; F. Wayne Martin, program printing; John Swift, advertising; Richard Murphy and Charles Levy, registration; James George, Joseph P. Whalen and James Quinn, seating reservations; Donald G. Earnshaw, tickets and mailing; Domenic A. Teoli, entertainment; Manson Glover, special assignments; John R. Wright, hospitality; Dr. George P. Swift, advisor; James R. Chisholm and Hubert M. Foley, door prizes.

TRAINING COURSES

Binks Spray Painting School Sets Fall-Winter Dates

The tuition-free spray painting school operated by Binks Manufacturing Company, Chicago, has set the following dates for the 1960 Fall and Winter sessions: September 12-16; October 3-7; November 7-11; December 5-9.

Conducted by Jack Adams, Binks' director of customer research, the school will cover all aspects of spray painting, including the latest developments in spray equipment systems and automatic spray controls. Airless and electrostatic spray painting will be given special attention, as well as recent developments in the field of multiple-component material spray application.

For more information and registration forms, write Binks Manufacturing Company, 3118-40 Carroll Ave., Chicago 12, Illinois.

NECROLOGY

Dr. F. P. Summers

Dr. Franklin P. Summers, who was well known for his efforts in the development of dyes and application techniques for color anodizing, died on June 18. Dr. Summers, an employee of Sandoz, Inc., was manager of that firm's Charlotte, N. C., district sales office prior to becoming associated with the aluminum finishing field. He joined Sandoz in 1931 and was retired by the company in 1946.

August P. Munning

August P. Munning, vice president of Munning & Munning, Inc., Newark, New Jersey, passed away on June 30 after an illness of several months.

August P. Munning

Mr. Munning was a graduate of the University of Chicago and the Massachusetts Institute of Technology. He had been associated with the plating industry during his entire business career.

President of A. P. Munning & Co. of Kobe, Japan from 1926 to 1929, Mr. Munning had been vice president of Munning & Munning, Inc., of Newark, N. J., since 1930.

When the Metal Finishing Suppliers' Association was incorporated in 1950, Gus Munning was elected its first president, serving two terms. Since that time he had served as executive secretary of the Association, and was, in many ways, its guiding spirit.

He was a member of the Newark Branch, American Electroplaters' Society, and was also active in the National Association of Manufacturers and the National Society of Professional Engineers.

Mr. Munning served in the Artillery in WWI and on the War Production Board in WWII.

MEETINGS of INTEREST to FINISHERS

Sept. 16. Second Metropolitan Regional Technical Session, A.E.S., (Newark Branch is host), Robert Treat Hotel, Newark, N. J.

AGATEEN

THE QUALITY LACQUER

Is used by Who's Who among manufacturers of well known nationally advertised brand products.

You can depend on AGATEEN!

Agate Lacquer Mfg. Co., Inc.

Serving Industry Since 1927

11-13 43rd Road
Long Island City, N. Y.
Stillwell 4-0660-1

AGATEEN
THE LAST WORD IN QUALITY

For more data circle 416 on Postpaid Card

Sept. 17. 24th Annual Educational Session and Banquet, Boston Branch, A.E.S., Hotel Statler, Boston, Mass.

Sept. 24. Annual Banquet, Montreal Branch, A.E.S., Queen's Hotel, Montreal, Canada.

Oct. 9-13. Fall Meeting, The Electrochemical Society, Shamrock Hotel, Houston, Texas.

Oct. 12-14. 7th National Symposium, American Vacuum Society, Cleveland-Sheraton Hotel, Cleveland, Ohio.

Oct. 17-21. 42nd National Metal Exposition and Congress, A.S.M., Trade and Convention Center, Philadelphia, Pennsylvania.

Oct. 27-29. 73rd Annual Meeting, National Paint, Varnish and Lacquer Association, Drake Hotel, Chicago.

Oct. 29. Second Annual Meeting, Midwest Regional Council (St. Joseph Valley Branch is host), University of Notre Dame, South Bend, Indiana.

Dec. 2-3. Annual Educational Meeting and Banquet Detroit Branch, A.E.S., Statler-Hilton Hotel, Detroit.

The Finishing Touch

FINISH COATER
JULY 1950 - SAFEST WORKER AWARD
NOV. 1952 PERFECT RECORD ATTENDANCE
AUG. 1957 BEST PRODUCTION AWARD
JULY 1959 10 YEAR SERVICE PIN
Glueckert

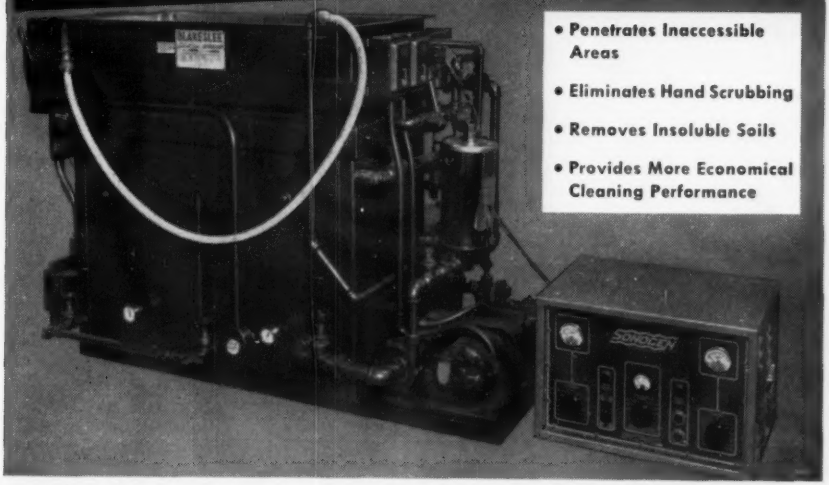
"He isn't letting us forget any of it for a minute."

For Fast Production Line Operation

BLAKESLEE

Ultrasonic PARTS CLEANING EQUIPMENT

...CONVEYORIZED AND OPEN TANK MODELS



- Penetrates Inaccessible Areas
- Eliminates Hand Scrubbing
- Removes Insoluble Soils
- Provides More Economical Cleaning Performance

Blakeslee Degreasers and Parts Washers, combined with Branson "Sonogen" Ultrasonic Equipment, enable you to profit from the outstanding service and engineering know-how of two top leaders in the field. Available in combination with Blakeslee immersion stage open tank and conveyorized degreasers and parts washing machines, this advanced method removes all solid and soluble soils to provide highest quality cleaning—with results never before obtainable on a production basis.

To improve your cleaning, increase production and lower your costs, write, wire or phone for complete data on Blakeslee "Ultrasonic" Equipment. Please Address Dept. **104-A.**

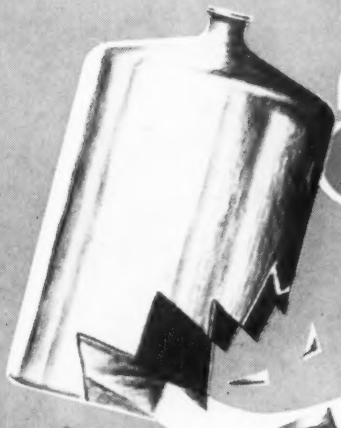
G.S. BLAKESLEE & CO. 1844 So. Laramie Ave., Chicago 50, Ill.
NEW YORK • LOS ANGELES • TORONTO

For more data circle 417 on Postpaid Card

AUGUST ADVERTISERS' INDEX

Acme Mfg. Co. 125
Acoustica Associates, Inc. 129
Agate Lacquer Mfg. Co. Inc. 165
Allied Chemical Corp., Solvay Process Div. 23
Allied Finishing Specialties Co. 139
Allied Research Products, Inc. 18, 121
Amchem Products, Inc. 24, 25
Amercoat Corp. 91
Apothecaries Hall Div.,
Hubbard-Hall Chemical Co. 81
Archer-Daniels-Midland Co. 88, 89
Atlas Powder Co., Chemicals Div. 38
Baird Machine Co. 100
Belke Mfg. Co. 111
Better Finishes & Coatings, Inc. 71
Beugler Mfg. Co. 120
Blakeslee & Co., G. S. 167
Bond Chemical Products Co. 131
Brady Co., W. H. 126
Branson Ultrasonic Corp. 8
Bruce Products Co. 159
Buckingham Products Co. 83
By-Buk Co. 142
Churchill Co., Inc., Geo. R. 124
Cincinnati Cleaning & Finishing
Machinery Co. ..... Second Cover
Clair Mfg. Co., Inc. 40
Cohn Mfg. Co., Inc., Sigmund 114
Conforming Matrix Corp. 6
Conversion Chemical Corp. 21
Cowles Chemical Co. 42
Crescent Bronze Powder Co. 112
Delavan Mfg. Co. 104
Despatch Oven Co. 54, 55
Detrex Chemical Industries, Inc. 15
Detro Mfg. & Sales Co., Inc. 148
DeVilbiss Co. 12, 13
Diamond Alkali Co. 39
Drying Systems Co. 140
Duralac Chemical Corp. 135
Dytex Chemical Co. 149
Electro-Glo Co. 102
Engelhard Industries, Inc. 11
Enthone, Inc. 99
Federated Metals Div.,
American Smelting & Refining Co. 9
Formax Mfg. Corp. 108
Fortune Industries, Inc. 128
Gasway Corp. 93
Hammond Machinery Builders, Inc. 7
Hanson-Van Winkle-Munning
Co. 22, 34, 35, 117
Harper Buffing Machine Co. 119
Harshaw Chemical Co. 56, 57
Hill Acme Co. 32
Holland & Sons, Inc., J. 145
Hull & Co., Inc., R. O. 3
Ideal Chemical Co. 156
Industrial Filter & Pump Mfg. Co. 10
Koch Sons, Inc., Geo. 20
Kushner Electroplating School 150
Lanly Co. 105
Lasalco, Inc. 103
Lea Mfg. Co. 134
MacDermid, Inc. ..... Third Cover
Magnus Chemical Co., Inc. 113
Mahon Co., R. C. 16, 17
Metal Finishing Suppliers' Assn., Inc. 163
Metaplast Process, Inc. 110
Michigan Oven Co. 4
Microbeads, Inc. 97
Midland Industrial Finishes Co. 147
Minnesota Mining & Mfg. Co. 36, 37
Moore & Co., Samuel, Synflex Products Div. 61
Morse Mfg. Co., Inc. 160
Munray Div., Textron, Inc. 122
Nikolas & Co., Inc., G. J. 33
Northwest Chemical Co. 109
Oakite Products, Inc. 1
Pangborn Corp. 19
Pennsalt Chemicals Corp. 73
Perma-Line Rubber Products Corp. 101
Ramco Equipment Corp.,
Div. Randall Mfg. Co., Inc. 143
Ransburg Electro-Coating Corp. 2
Ransohoff/Roto-Finish 26
Research Products Corp. 72, 106
Sarco Co., Inc. 123
Sel-Rex Corp. 107
Sethco Mfg. Co. 146
Seymour Mfg. Co. 141
Simplicity Engineering Co. 127
Sly Mfg. Co., W. W. 30
Solvay Process Div., Allied Chemical Corp. 23
Solventol Chemical Products, Inc. 136
Spee-Flo Co. 86, 87
Spra-Con Co. 115
Spraying Systems Co. 116
Steinen Mfg. Co., Wm. 133
Stevens, Inc., Frederic B. 14
Stewart-Warner Corp. 41
Sulphur Products Co., Inc. 140
Sundstrand Corp. 28
Sylvania Electric Products, Inc. 77
Synflex Products Div., Samuel Moore & Co. 61
Tenax Finishing Products Co. 161
Ti-Co Industries, Inc. 157
Titanium Products Corp. 126
Tousey Varnish Co. 84, 85
True Brite Chemical Products Co. 144
Turco Products, Inc. ..... Fourth Cover
Udylite Corp. 27, 29, 31
Unit Process Assemblies, Inc. 130
U. S. Stoneware Co. 79
Varnish Products Co. 151
Wilder Mfg. Co., Inc. 132
Wyandotte Chemicals Corp. 95
Young Bros. Co. 118

LOOK OUT... acid



Reduce costs...handling...danger... with MacDermid Dry Acid Replacement Salts

Acids in dry powder form are as safe and easy to handle as a barrel of flour! MacDermid Dry Acid Replacement Salts eliminate costly and dangerous carboys . . . simplify storage . . . end the danger of handling liquid acids—all without sacrificing quality.

The use of MacDermid's line of dry acid replacement salts immediately reduces costs at every stage in metal finishing. Write today for more information or call a MacDermid representative to show you the most economical, most efficient way to handle all your metal finishing problems.

M-629

For neutralizing, dipping and pickling all basis metals before or between plating cycles. Produces bright, smut-free work. Can be used as a chrome strip by immersion only.

Troxide

Pickling steel, brass, copper, tin, zinc.

M-602

Replaces fluoboric acid for pickling lead and leaded alloys.

Deoxidex

Cleans, deoxidizes, removes smut, inhibits formation of oxide film on aluminum.

Metex Etch Salts

Replaces hydrofluoric acid.

MacDermid
INCORPORATED
...right to the Finish!

WATERBURY, CONNECTICUT
Ferndale, Mich. • Torrance, Calif.

METAL CLEANERS • COPPER PLATING PROCESSES • DRY ACID REPLACEMENT SALTS
MACROMATE CONVERSION COATINGS • ELECTRO AND CHEMICAL POLISHES
BURNISHING AND OTHER METAL FINISHING COMPOUNDS

For more data circle 302 on Postpaid Card

Here's the

PHOSPHATE COATING

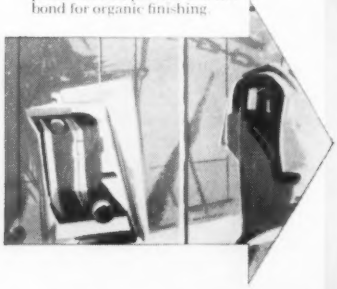
You asked **TURCO TO MAKE**

HERE'S HOW **PAINTITE®** SCORES ON SURVEY'S 12 "MOST WANTED" FEATURES...

—Formulated as Result of Industry-Wide Survey...

During the first six months of 1959, Turco undertook an extensive survey of the phosphate coating market. Hundreds of users of these coatings were interviewed. Thousands of questions were asked. When the answers were tabulated, Turco began the task of building an iron phosphate process to the *exact specifications* called out in the survey.

The new process is now available. It is called Turco Paintite. Paintite has been thoroughly field-tested in the production lines of a dozen Turco customers. It has passed the most severe tests with flying colors. Turco is proud to announce the addition of Paintite to its ten other Turcoat phosphate and conversion coating processes that provide a better bond for organic finishing.



1. SUPERIOR CLEANING–Exclusive wetting system provides heavy-duty uniform cleaning. Cleans & phosphates simultaneously.

2. TEMPERATURE VERSATILITY – Efficient anywhere within range of 140° to 180° F. Temperature control is not important.

3. LOW FOAMING – at any temperature within recommended range.

4. LESS POST RUST–Eliminates post rusting problem often encountered with iron phosphate processes.

5. NO WHITE STREAKING–Extra free rinsing. Leaves no residue.

6. ECONOMICAL–Low in initial cost. Low in maintenance cost. Low in cost per sq. ft. Long-lived, even under mass production use.

7. UNIFORM COATING–even on edges and points. Won't show through on low-pigmented paints.

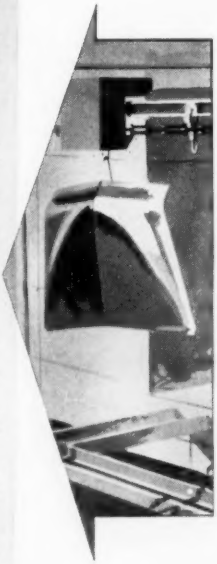
8. USE VERSATILITY–used by immersion, spray washer or steam cleaner.

9. LESS SLUDGE – less scale. Minimizes clean-up problems.

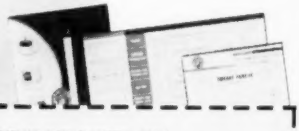
10. RESERVE ACIDITY–combats alkaline water conditions. Constant control not necessary.

11. SUPERIOR SERVICE–by Turco's vast network of technically trained servicemen, located in industrial centers throughout the world.

12. REQUIRES ONLY 3 STAGES–for dip or spray washing. Can be efficiently used in 5-stage operations, if desired.



FREE! VALUABLE BOOKLET
PHOSPHATING REFERENCE CHART
TECHNICAL DATA BULLETIN



Get the full story on Paintite and the other ten phosphating and conversion coating processes in the complete Turcoat line. Write for your copy, along with Turco's Phosphating Reference Chart, today!

TURCO PRODUCTS, INC.
Chemical Processing Compounds
24600 South Main Street, Wilmington, California
FACTORIES: Rockdale, Ill., Houston, Wilmington, London, Rotterdam, Sydney, Mexico City, Paris, Hamburg, Montreal, Manila, Naha (Okinawa)
Offices in All Principal Cities

TURCO PRODUCTS, INC.
24600 South Main St. Wilmington, Calif.

MERELY AFFIX COUPON TO COMPANY LETTERHEAD

Please send valuable booklet with Phosphating Reference Chart and full details on Paintite. I understand there is no cost or obligation on my part.

NAME

TITLE

For more data circle 303 on Postpaid Card